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TABLE OF CONTENTS

Editorial:

The Gesolei at Düsseldorf: FIELDING H. GARRISON	1
The Wesley M. Carpenter Lecture: Ionization and chemical reactions: MICHAEL I. PUPIN	7
Periarteritis Nodosa: FRANCIS HARBITZ	17

Abstracts of papers presented at section meetings:

Combined meeting of the Section of Neurology and Psychiatry with the New York Neurological Society, November 9: DRs. E. D. FRIEDMAN, I. S. WECHSLER, AUGUST WIMMER	19
Section of Pediatrics, November 11: DR. S. ADOLPHUS KNOFF	26
Section of Otology, November 12: DR. JOSEPH H. GLOBUS	28
Section of Obstetrics and Gynecology, November 23: DR. B. P. WATSON	30
Proceedings of Academy meetings, December, 1926	32
Recent accessions to the Library	39

Committee on Medical Education:

Approved opportunities for graduate medical study in New York City	42
--	----

Notes:

Medical visitors to New York	50
Opening of the new building	51
Amendments to the Constitution and By-Laws	52
Announcements	53
Deaths of Fellows of the Academy	53

TABLE OF CONTENTS

Editorial:

The history of heating, ventilation and lighting: FIELDING H. GARRISON	57
---	----

Addresses delivered at the dinner in honor of the newly elected Honorary Fellows:

Harvey Cushing, George E. de Schweinitz, William Sydney Thayer	68
---	----

Opening exercises at the new building:

Dedicatory prayer: Rev. Henry Sloane Coffin, D.D.	83
Addresses: Samuel A. Brown, Arthur B. Duel	84

Election of Honorary Fellows:

Citations	93
-----------------	----

Abstracts of papers presented at section meetings:

Section of Ophthalmology, November 15: JOSEPH IMRE	97
Section of Surgery, December 3: LOUIS CARP, RALPH COLP	98

Combined meeting of the Section of Neurology and Psy- chiatry and the New York Neurological Society, December 7: E. D. FRIEDMAN, ALFRED S. TAYLOR.....	103
--	-----

Section of Pediatrics, December 9: JOSEPH C. REGAN and ALEXANDER TOLSTOUHOV, DUDLEY D. SHOEN- FELD and WILLIAM V. SILVERBERG	108
--	-----

Section of Historical and Cultural Medicine, December 9: CHARLES L. DANA	110
---	-----

Section of Otology, December 10: WALTER L. HORN.....	112
--	-----

Section of Genito-Urinary Surgery, December 15: R. E. CUMMING	115
--	-----

Section of Medicine, December 21: JEAN CORWIN and W. W. HERRICK	118
--	-----

Section of Laryngology and Rhinology, December 22: A. LOBELL	120
---	-----

Proceedings of Academy meetings, January, 1927	121
--	-----

Recent accessions to the Library	127
--	-----

Notes:

House rules of the new building	131
---------------------------------------	-----

Fellows recently elected	132
--------------------------------	-----

Deaths of Fellows	135
-------------------------	-----

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TABLE OF CONTENTS

Editorial:

Bacteriophagy and the theory of ultrascopic viruses: FIELDING H. GARRISON	217
--	-----

Papers presented at the Stated Meeting of January 20:

A Symposium on Backache:

From the standpoint of the orthopedist: NATHANIEL ALLISON, Boston	224
From the standpoint of the urologist: J. BENTLEY SQUIER	231
From the standpoint of the gynecologist: GEORGE GRAY WARD	238

Abstracts of papers presented at section meetings:

Section of Medicine, December 21: ROLFE FLOYD	244
Section of Neurology and Psychiatry, January 11: ALFRED ADLER, Vienna	254

Proceedings of Academy meetings, February, 1927	256
---	-----

Public Health Relations Committee:

Report on the administration of the City Health De- partment	263
Report on ambulances	267

Library notes:

The Library and its new features	269
Recent accessions to the Library	274

Notes:

The Edward N. Gibbs Memorial Prize Fund	282
New Academy committees	283
Catalogue of an exhibition of works in the plastic and graphic arts by American physicians	284
Fellows elected	297

Deaths of Fellows	299
-------------------------	-----

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TABLE OF CONTENTS

The development of military medicine: LIEUT.-COL. JAY W. GRISSINGER	301
Reconstruction operations on the hip joint: E. G. BRACKETT	357
Proceedings of Academy meetings, March and April, 1927	360
Recent accessions to the Library	373
<i>Announcements:</i>	
Fellows elected April 7, 1927	379
Library subscriptions	379
Bibliographical service	379
Medical portraits	379
Luncheon service	380
Deaths of Fellows	380

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TABLE OF CONTENTS

The Philosophy of History : JOHN C. HEMMETER	383
Address : SAMUEL W. LAMBERT	392
<i>Abstracts of papers presented at section meetings:</i>	
Section of Ophthalmology, May 16: HIDEYO NOGUCHI	395
Section of Surgery, January 7: ROBERT H. KENNEDY, JOHN J. MOORHEAD and JOHN A. KILLIAN	400
Section of Neurology and Psychiatry, January 11: S. L. RUSKIN	409
Section of Pediatrics, January 13: JOSEPHINE B. NEAL and HENRY W. JACKSON, JOSEPHINE B. NEAL and EMANUEL APPLEBAUM, ARTHUR FORREST ANDERSON	413
Section of Otology, January 14: ROBERT SONNENSCHNEN	416
Section of Ophthalmology, January 17: JULIUS WOLFF	418
Section of Medicine, January 18: GEORGE BAEHR, LEO KESSEL and HAROLD THOMAS HYMAN	419
Section of Orthopedic Surgery, January 21: J. TOR- RANCE RUGH	423
Section of Obstetrics and Gynecology, January 25: HERMAN F. STRONGIN, H. J. EPSTEIN and A. J. FLEISCHER	425
Proceedings of Academy meetings, May, 1927	429
Constitution and By-laws	435
Recent accessions to the Library	437
Fellows elected May 5, 1927	441
<i>Obituary notices:</i>	
Dr. Walter B. James. Photograph	442
Dr. Charles H. Peck	446
Dr. Robert F. Weir. Photograph	448
Dr. Isham Green Harris	450
Dr. Herbert C. de V. Cornwell	451
Dr. Seymour Basch	451
Dr. Henry Koplik	451

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TABLE OF CONTENTS

Abstracts of papers presented at section meetings:

Section of Pediatrics, December 9, 1926:

Dietary of the Children's Service, City Hospital: WALTER LESTER CARR	453
---	-----

Section of Surgery, February 4, 1927:

Treatment of Acute Suppurative Pleurisy in Chil- dren: JOHN V. BOHRER	456
The Control of Post-operative Hemorrhage Follow- ing Nephrectomy for Removal of Renal Calculi: DOUGAL BISSILL	460

Section of Neurology and Psychiatry, February 8, 1927:

Tumor of the Medulla: GEORGE H. HYSLOP	463
Photograph: Tumor of the Medulla	464 & 465

Section of Pediatrics, February 10, 1927:

The Effect of Parathyroid Extract on Tetany and Rickets in Infants: LYNNE A. HOAG	468
--	-----

Section of Ophthalmology, February 21, 1927:

The Development of the Glaucoma Scotoma: A. H. THOMASSON	470
Historical Perspectives in Ophthalmology: ARNOLD C. KLEBS, Switzerland	470

Section of Obstetrics and Gynecology, February 22, 1927:

Brief Discussion of Three Cases of Extra-vesical Ureters: H. DAWSON FURNISS	472
Uterus Duplex Unicollis: WALTER T. DANNREUTHER	473
A Report of Sperm Examinations in Obscure Cases of Sterility: G. L. MOENCH	475

Book Reviews: FIELDING H. GARRISON:

A New History of Medicine	477
The Healing Power of Nature	479
A Note on Girolamo Segato	481

Opinion on the Internal Revenue Act	482
---	-----

Library:

Recent Accessions	483
Notes	487

Hosack Bed for Sick and Needy Physicians	487
--	-----

Donation to the Library Funds	487
---	-----

Form of Bequests	488
----------------------------	-----

Deaths of Fellows of the Academy	488
--	-----

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TABLE OF CONTENTS

Editorial:

Constitution and Characterology: FIELDING H. GARRISON	489
---	-----

Papers presented at stated meetings:

SYMPOSIUM: THE EVOLUTION OF MIND, APRIL 7, 1927:

The Brain of Prehistoric Man: FREDERICK TILNEY.....	495
The Concept of Evolution as Applied to the Human Mind: WILLIAM A. WHITE, Washington	502
Fundamental Discoveries of the Last Decade in Human Evolution: HENRY FAIRFIELD OSBORN	513

MARCH 17, 1927:

The Management of Measles in Hospital and Home: HENRY JAMES SPENCER	522
--	-----

Abstracts of papers presented at section meetings:

Section of Neurology and Psychiatry, February 8:

WILLIAM K. GREGORY, Ph.D.	525
--------------------------------	-----

Section of Surgery, March 4: PAUL W. ASCHNER.....

Section of Neurology and Psychiatry, March 8: WAL-

TER M. KRAUS, G. SCHALTENBRAND	532
--------------------------------------	-----

Section of Medicine, March 15: AARON BROWN

Section of Genito-Urinary Surgery, March 16: DAVID

W. MACKENZIE, Montreal, and ALLAN B. HAW- THORNE, Montreal	538
--	-----

Section of Ophthalmology, March 21: F. H. VER-

HOEFF	539
-------------	-----

Section of Obstetrics and Gynecology, March 22: H.

W. MAYES	540
----------------	-----

Public Health Relations Committee:

Dinner to Sir George Newman	541
-----------------------------------	-----

Recommendations Relative to the Contagious Disease

Hospitals of the Department of Health of the City of New York	543
--	-----

Library notes:

Richard Bright Exhibit	545
------------------------------	-----

Recent Accessions	548
-------------------------	-----

Announcements	552
---------------------	-----

Deaths of Fellows of the Academy	553
--	-----

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TABLE OF CONTENTS

Editorial:

Protein Stimulation: FIELDING H. GARRISON	555
---	-----

Papers delivered at stated meetings:

The Pathology and Neurologic Symptoms in Pernicious Anemia, April 21, 1927: ISRAEL STRAUSS	561
Comment on tropical diseases of interest in New York City—A brief review, May 5, 1927: C. H. LAVINDER, Senior Surgeon, U. S. Public Health Service	563
The Thyroid Gland and its Relation to Disease, May 19, 1927: DAVID MARINE	575

Abstracts of papers delivered at section meetings:

Section of Orthopedic Surgery, April 15, 1927: LOUIS CARP	581
Section of Ophthalmology, April 18, 1927: DANIEL B. KIRBY, J. G. HOPKINS	583
Section of Surgery, May 6, 1927: EUGENE KLEIN	586
Section of Neurology and Psychiatry, May 10, 1927: J. FESER	589
Section of Otology, May 13, 1927: ARTHUR M. ALDEN, St. Louis	591
Section of Obstetrics and Gynecology, May 31, 1927: J. HOFBAUER, Baltimore	594

Stated meetings of the year	597
-----------------------------------	-----

Resolution in regard to Volstead Act	598
--	-----

Committee on Medical Education:

Opportunities for Graduate Medical Study in Hospitals of New York City	599
--	-----

Announcements:

Industrial Hygiene Exhibit	600
Candidates recommended for election to Fellowship	600

Library:

Recent accessions	601
Note	605

Correction	605
------------------	-----

Deaths of Fellows of the Academy	605
--	-----

COMMITTEES OF THE ACADEMY

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TABLE OF CONTENTS

Incidents in the Recent History of The New York Academy of Medicine: DAVID BRYSON DELAVAN	675
Colonial Medicine, or the Doctor of Our Forefathers: THOMAS J. HARRIS	707
<i>Abstracts of papers delivered at section meetings:</i>	
Section of Surgery, October 7, 1927: CONDICT W. CUT- LER, JR.	721
Section of Otology, in conjunction with the New York League for the Hard of Hearing, October 14, 1927: ARTHUR J. CRAMP	726
Section of Ophthalmology, October 17, 1927: ISAAC HARTSHORNE, MARTIN COHEN, HENRY H. TYSON	728
Section of Medicine, October 18, 1927: MAURICE FISH- BERG, GRANT THORBURN	737
Section of Orthopedic Surgery, October 21, 1927: A. PHILIP ZEMANSKY, JR.	742
Section of Obstetrics and Gynecology, October 25, 1927: MEYER M. STARR, ARTHUR STEIN	743
Proceedings of Academy meetings, October and November ...	746
Practical Lectures	758
Recent Accessions	760
Fellows elected November 3, 1927	763
Resolution of the Council: Dr. Herbert S. Carter	764
<i>Obituaries:</i>	
Dr. Herbert Swift Carter: ELLSWORTH ELIOT, JR.	764
Dr. William Gilman Thompson	767
Death notice	769

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THE NEW YORK ACADEMY OF MEDICINE

VOL. III

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No. 1

THE GESOLEI AT DÜSSELDORF¹

From the date of the first international congresses on statistics (Brussels, 1851) and public hygiene (Brussels, 1852), one of the principal aims of physicians has been to educate the public as to ways and means of preserving health and warding off disease by "objective teaching" or visualization (*Anschauungsunterricht*). In the earlier stages, this was usually accomplished by graphs and diagrams designed to convey the net result of statistical computations to the mind's eye or photographs illustrating the ravages of communicable diseases and the known methods of preventing them. A little later, the Paris Exposition (1855) became the starting point of the many exhibits of apparatus, appliances and inventions illustrating advances in practical sanitation. Displays of this kind constituted a feature of all subsequent national or international exhibitions on a grand scale, particularly those held at Paris in 1867, 1878, 1889 and 1900, the Centennial at Philadelphia (1876) and the subsequent exhibitions at Chicago (1893), Buffalo (1901), St. Louis (1904) and San Francisco (1914). The attractive features and beautiful environs of Düsseldorf and Munich have made them natural centers for such *Ausstellungen*, and under the inspiration of Sudhoff, who was then practising in Hoehdahl, a suburb of Düsseldorf, that city had three successive expositions devoted to the history of medicine and hygiene in 1898-9 and 1895. The culmination of these efforts was the great International Exposition of Hygiene at Dresden in 1911, the historical section of which (also got up by Sudhoff) comprised no less than 20,394 material objects, rang-

¹ Schlossmann, Bürgers *et al.*: Die Gesolei. Umschau, Frank. a M., 1926, xxx, 589-609.

ing from prehistoric times to the middle of the 19th century. Through the European War and its consequences, Germany became so crippled as to financial resources and housing facilities that the idea of getting up expositions was until very recently unthinkable. At the same time, war-time propagandism introduced a new feature, the poster, with its possibilities of arresting attention by the grotesque phases of impressionism. The Gesolei at Düsseldorf (1926), which has been an object of intense interest to foreign visitors, is the first German hygienic exhibit of consequence since 1911, and has incurred some criticism as a waste of money in time of financial stringency, although it has given employment to some 15,000 people. It is unique in its determinate program of conveying results of statistical tabulations and computations by means of allegorical posters. A striking example of the efficiency of this method is to be seen in a cartoon in the advertising pages of current German medical periodicals, illustrating the fact that, as life insurance risks, the lean, lank attenuated people have better chances of longevity than the short, fat and stocky. The idea is conveyed by a parallel procession of lean and fat people toward an advanced age (80 or 90). Only the lank and attenuated reach the goal.

Gesolei is a newly coined word, compounded of the initial syllables of the German expressions for hygiene (*Gesundheitspflege*), social welfare (*Soziale Fürsorge*) and physical exercise (*Leibesübung*), the three main subdivisions of the exhibit, which was planned in 1924, by Prof. Arthur Schlossmann, the eminent pediatricist, with the cooperation of Dr. Robert Lehr, burgomaster of Düsseldorf, and Prof. Kreis, who is responsible for its artistic merits. The Hygienic Section, directed by Prof. Bürgers, of the Düsseldorf Medical Academy, comprises 12 sections, viz., 1, man in general; 2, heredity and racial hygiene; 3, air and climate; 4, nutrition; 5, man in relation to plants and animals; 6, habitations and settlements; 7, clothing and personal hygiene; 8, nursing; 9, communicable diseases; 10, colonial hygiene and tropical diseases; 11, industrial hygiene; 12, military and naval hygiene in the recent war; with special exhibits illustrating water supply, disposal of sewage, fire prevention, transportation of the sick and wounded and the like. Pictures, models, dummy figures, images, dioramas, diapositives, rhinoscopes and films are freely used.

There is a round-house called "The Transparent Man," in which Spalteholtz has installed representations of the brain and all other parts of the body in glass, thus extending the transparent anatomy of Leonardo da Vinci to three dimensions. There is a special pavilion devoted to Jewish hygiene through the ages, a House of the Physician, containing letters, prescriptions and portraits of famous medical men, a Physician's Garden, reproducing the cloister garden at St. Gall, a model first aid station, a display of the appointments of a model hospital, a model infant's home, an exhibit of "Two Thousand Years of Hygiene on the Rhine, in 15 dioramas devised by Haberling, three life-sized panoramas of the existence of prehistoric man and a "color-piano." The exhibit of water supply and disposal of sewage is of vast extent, showing their historic, technical and industrial aspects, with such features as a relief-model of the water-works of the Rhineland and Westphalia and a panorama of dams for protecting valleys from inundation. The disposal of excreta in remote antiquity begins with the primitive employment of the four principles of ancient medicine, earth, air, fire, water. Then come the gigantic drains of the Assyro-Babylonians, including models of sewer-piping from Assur (the oldest city of Assyria), and Babylon, the temple of Baal at Nippur (2000-1000 B.C.), the palace of Tikulti-Ninib (1250 B.C.), the palace of Sargon at Chorsabad (800 B.C.), and the Southeast palace of Nimrod at Nineveh (800 B.C.). All these structures reveal a remarkable proficiency in the mechanics of vaulted enclosures, archways and the junction and jointing of pipes. The Egyptian exhibit, from the mausoleum of King Sahu-re, goes to show that the great pyramids and temples had complete arrangements for the collection of rain water and the disposal of sewage by a vast system of copper pipes. Models of the sewerage system of the palaces at Knossos, Crete (3500 B.C.) and Tiryns (1450-1250 B.C.), as also specimens of canalisation from ancient Athens, Pergamon and Priene, indicate that the Greeks were nowise backward in sanitary engineering, as evidenced also by their elaborate washstands and shower baths and by an Athenian ordinance of 320 B.C., inflicting punishment for the casting of offal into the streets. Roman sanitary engineering is represented by models of the Cloaca maxima and of sewers from the Temple of Hercules (Rome),

Olmo and Aosta. The proneness of savages to cover up excreta with earth and sand is borne out by the remark of the Indian chief about army latrines: "White man must think a lot of filth to build a house around it." Yet water-closets have existed from remotest antiquity and the Gesolei displays models from Babylon, Nineveh, Knossos, Tell-el Amarna (1400 B.C.), Cairo (640 B.C.), Priene and Pompeii, with multiple arrangements in rectangular formation from Puteoli (45 seats) and in ring formation from the bathrooms of the Roman military station at Timgad in the Sahara (28 seats) and the palace of Augustus Caesar in Rome (3 seats). The ancient Egyptians usually preserved excreta in canopic jars, of which arrangement the cesspools of the Levantine countries are a variant. In the Middle Ages, in fact, the intuitive or immanent hygiene of the Greeks and the Romans disappeared. Squalor, filth, crime, shortage of food, epidemic diseases, infanticide and other evils of overcrowding were the portion of the mediæval walled towns for centuries. Municipal sanitary ordinances began to appear in the 13th century, quarantine regulations during 1374-1403. Sewerage and cleansing of sewers were reestablished in Rome by the Papacy in the 16th century. The Gesolei shows models of latrines from the cloister of St. Gall, from castles at Eltz on the Moselle, Baehrach and Oberwesel on the Rhine, from the Italian Castel del Monte (1240), the Hohenstauffen palace at Lagopesole (1250), from the Palazzo Davanzati at Florence (1300) and from the castles of the Teutonic order at Lockstedt and Thorn. The first German city to possess an adequate system for flotation and piping of sewage was Bünzlau (Silesia) in the 16th century. Until the middle of the 19th century, when sanitation acquired an *impetus faciens* from the cholera epidemics of 1831-49, little advance was made in water supply and sewage disposal. Extant plans of the water works of the German cities show the possibility of contamination by proximity to local abattoirs, tanneries and the like. The recent inventions of flush tanks, sand filters, soil filters, and of bacterial purification by means of septic tanks, irrigation fields, fish ponds, activated slime and the Imhoff system (Emscher Thal) may be seen in detail at the Gesolei, in the shape of a model house, transparencies showing the dangers from overflow

and from liquid explosives in sewer-pipes, with innumerable pictures and models.

The section on Social Welfare at the Gesolei proved a surprise to those who had predicted that, in the absence of worthwhile material, it would repel by piling up columns of unintelligible statistics. Precisely the merit of the Gesolei is that it is designed to instruct the people by methods common to the picture-writing of savages, the tavern-sign, the placard, the poster and the movies. Thus the recent birth and mortality rates of Germany are conveyed by a bell and clock-dial arrangement, punctuating the facts that every 24 seconds a child is born, every 72 seconds a couple is married, every 42 seconds some one dies. The longevity of the German population since the war is indicated by pyramids of dolls, tapering off into solitary dolls of advanced age, the decline in the birth rate and of the male population from battle losses being graphically emphasized. The Communal League of Social Welfare (organized 1925) exhibits a large model-city of the future, of half a million inhabitants. Under the trees of the Hofgarten, the model Infant Home, with glass walls, holds visitors for hours with its twelve lusty babies, sometimes in revolution on a merry-go-round. To this is attached a "light and air-bath" in which recuperation *via* the Liliputian railway and other outdoor pleasures is afforded to 20 children daily. The section is policed by women, who look after 150 needy people *per diem*. Among the most striking of the posters are those showing the 10 separate movements necessary to clean the teeth fore and aft, the tendency of houses to become damp in proportion to the number of children, the transmission of communicable diseases by animal and human carriers and the effect of preventive measures upon the incidence and mortality rates, the inflation of the sickness-insurance fund from 77 million marks (1891) to 2,091 million marks (1920) and its subsequent collapse, the causes of scarcity of habitations (*Wohnungsnot*) during 1919-24, the proportion of trees and grassplots in Prussia and the industrial districts on the Rhine, and the ratio of the number of children per family to child mortality per 100 in the following occupations: learned classes (2.7:5.4), officials and teachers (3.04:6.1), artistic professions (3.2:8.1), merchants (3.41:9), mechanics (3.83:15.6), clerks (4.31:16.3), day laborers (5.96:20.7). In spite of the

fact that plague, cholera and smallpox are now known by name only, it is shown that one-third of deaths are still due to communicable diseases. During 1918, 98,000 died from tuberculosis and 120,000 from Spanish influenza. The number of deaths from food shortage during the war period (1914-18) was 762,796 in the civilian population alone, which must be considered in connection with the tremendous war losses of the German army, viz., 1,531,048 killed, 4,211,469 wounded, 155,013 died from disease, 991,340 missing (total, 6,888,870).

The oxygen consumption of the body in different kinds of exercises is indicated by the proportionate burning of a candle, and the fact that the total area of the 350 million air chambers of the lungs (150 square meters) is 70 times greater than the surface area of the body (2 meters) is driven home on a poster showing a man against a wall 70 meters long and one meter in height. The section on physical exercise is handled in the same intelligent way. The development of Swedish movements (for the whole body) from gymnastics used long ago in the Swedish and Danish armies, the exhibit of gymnasium costumes of circa 1825, 1885 and 1925, the cubicle exhibits of the different societies devoted to hockey, tramping, riding, fencing, swimming, tennis, cycling and aviation, the fine fresco paintings of the Athenian Stadion and of the sports of mediæval chivalry, and the daily exhibitions of the different schools for rhythmic gymnastics and of other units of the Gymnastic League in the Planetarium, demonstrate the steady growth of Germanic interest in "sport" since the days of Turnvater Jahn and since the war. The coöperation of local organizations and of many commercial plants have made the Gesolei possible. It may not appeal to the sophisticated. Its merits and defects are those of an essential folk-exhibition, "of the people, for the people and by the people."

F. H. GARRISON

THE WESLEY M. CARPENTER LECTURE

IONIZATION AND CHEMICAL REACTIONS

M. I. PUPIN
Columbia University

(Delivered before The New York Academy of Medicine,
November 18, 1926)

Ionization is a new word in physical science. When I began to study physics forty-four years ago the word was not used in the college lecture rooms. It was born thirty years ago and it is the offspring of the Roentgen ray discovery. Behind this word there is a new science, the science of Electron Physics which has been created during the last twenty-five years. In this new science we have a beautiful union between the sciences of physics and chemistry. I shall try to explain briefly one of the aspects of this union. A brief sketch of its history will, I think, prove useful as an introduction.

The greatest scientific discovery of the nineteenth century is the discovery that light is an electromagnetic phenomenon. The glory of this discovery belongs to Michael Faraday, the Englishman, and to Clerk Maxwell, the Scotchman. It will forever be one of the greatest achievements of British science. According to Faraday and Maxwell radiation of light is an activity of moving electricity. This means that in every radiating body there is a rapid motion of electricity, so rapid indeed, that its oscillations count many millions per second. One of the obvious pictures which this suggests to our mind is as follows: There is an electrical charge attached to the atoms and molecules of material bodies and it must be very minute, otherwise it could not vibrate with the rapidity of the vibrations of light.

Franklin, nearly two hundred years ago, imagined that electricity had a minute granular structure, in order to explain the electrical current in a conductor. He represented it as the motion of tiny electrical granules through the interstices separating the conductor's atoms and molecules from each other. Franklin's intuition assumed a definite form when ninety years ago Faraday discovered that whenever a substance, say a salt solution, is de-

composed by an electrical current a definite but very minute electrical charge is attached to each chemical valency of the decomposed molecules. This is the so-called Faraday law of electrolysis. The motion of these charges constitutes according to Faraday the electrical current through the electrolyte. Thus when water is decomposed into oxygen and hydrogen then for each atom of oxygen there is twice as large a quantity of electricity set into motion as for each atom of hydrogen; oxygen has two valencies whereas hydrogen has only one. If in this decomposition the electrical charge moving with the oxygen is negative then that transferred with hydrogen is positive and numerically equal to it. In the undecomposed molecule of water both charges are present in equal amounts and, therefore, they exert no external electrical force. But the internal electrical force between them may be very great, and it was believed to be by far the greatest force which acts between the components of a material molecule. The action of this force can and has been accurately measured in very many cases and it is expressed in terms of the electromotive force which must be applied in order to produce a chemical decomposition of the molecule.

The greatest chemists of the early days of the nineteenth century, Berzelius and Sir Humphrey Davy, expressed a belief that the electrical forces between the components of the molecule are the principal forces which guide chemical reactions. This belief was suggested to them by the discovery of electrolysis in the beginning of the nineteenth century. Faraday was a disciple of Sir Humphrey Davy, and it is very suggestive indeed that his study of electrolysis furnished a powerful support to his teacher's scientific belief.

Faraday coined a new word, the word ion, the wanderer, and applied it to the carriers of electrical charges in electrolytic decomposition. Thus in the decomposition of water one component, the hydrogen atom, carries the positive charge in one direction and the other component, the hydroxyl, carries an equal negative charge in the opposite direction. The first is the positive and the second is the negative ion. Although it is not always possible to assign to each ion its definite chemical structure it is always certain that in electrolytic decomposition these ions do exist and that their motion through the electrolyte constitutes the electrical

current. Without this motion of the ions no continuous electrical current through any electrolytic solution is imaginable.

It was suggested by Clausius some sixty years ago that these ions exist in electrolytic solutions even when no electrical force is acting, and that the presence of the electrical force directs only their motion which manifests itself as the electrical current. Their existence, he believed, was due to the breaking up of the molecules of the dissolved salt brought about by collisions accompanying that chaotic heat motion of molecules which manifests itself as temperature. This hypothesis concerning the spontaneous generation of the ions was proved to be untenable, but their ever-present existence in electrolytic solutions was demonstrated in many different ways, particularly by measurements of the electrical conductivity of the solution, its osmotic pressure, rise of the boiling point and lowering of the freezing point. The experimental researches relating to this remarkable phenomenon, electrolytic dissociation, forms the experimental basis of Modern Physical Chemistry, which may be said to have been born forty years ago. But its broad theoretical foundation was laid fifty years ago by Josiah Willard Gibbs, of Yale, whose work remained unknown in this country for nearly twenty years. It was also unknown in Germany when I was a student there. I discovered it by accident and it supplied me forty years ago with material for a doctor's dissertation at the University of Berlin and so I was the first to talk about him in Germany, and to eulogize him. I had good reasons to believe that these eulogies had made some impression, because three years later Professor Ostwald, of Leipzig, announced that he had just discovered Willard Gibbs.

Svante Arrhenius, the distinguished Swedish chemist, was the first to call the attention of the physicist and of the chemist to the remarkable difference in the physical and chemical behavior of solutions which conduct electricity and those which do not conduct it, as for instance a solution of sulphate of copper and a solution of sugar. The first is a conductor of electricity and is decomposed by an electrical current; hence it is called an electrolyte. The second does not conduct electricity and, therefore, it cannot be decomposed by an electromotive force. Arrhenius was the first to explain clearly and convincingly this difference

in the behaviors of electrolytic and non-electrolytic solutions by the assumption, first made by Clausius, that in an electrolytic solution the molecules of the salt are broken up into positive and negative ions which in very dilute solutions act like independent molecules. The splendid experimental verifications of this assumption were so remarkable that no reasonable doubt could be entertained with regard to its correctness. This breaking up of the salt molecules in an electrolytic solution was called, forty years ago, dissociation; today it is called ionization, this last name being more acceptable to the terminology of the modern electrical theory of atomic structure.

Some chemists of the old school objected to the idea of dissociation on somewhat curious grounds. One of them speaks of it in the latest volumes of the *Encyclopedia Britannica* as follows:

The war cry of the molecules, according to Arrhenius, is: "We will dissociate, nothing shall prevent us." The chemist had more belief in the moral character of the molecules and expected that they would observe the marriage tie.

This venerable chemist is not aware of the historical fact that in the marriage ceremony which unites the components of a molecule there is no tie which was ever declared to be sacred and which nothing but death shall sever. The components of a molecule are partners, only, with no other sentimental bond between them except an agreement to engage in chemical business transactions which will be of mutual benefit. To illustrate: Consider a hydrochloric acid molecule; it is a partnership between an atom of hydrogen and an atom of chlorine. A molecule of potash is a partnership between an atom of potassium and a molecule of hydroxyl. Dissolve them both in water and they will be dissociated into positive and negative ions, ready to engage in a chemical operation which actually takes place. A chemical reaction occurs forming a molecule of water and two free ions, one an atom of potassium carrying a free positive charge and the other an atom of chlorine carrying a free negative charge. They are an ionized molecule of chloride of potassium, ready and anxious for an opportunity to engage in a chemical reaction. This opportunity is given when, for instance, we drop into the

solution some nitrate of silver. This is ionized and immediately its positive ion, silver, unites with the negative ion, chlorine, forming chloride of silver. The reaction is rapid; almost instantaneous, showing the great eagerness of the dissociated partners in the chloride of the potassium molecule to engage in a chemical business transaction. The transaction was made possible by the action of water, the solvent, ionizing each molecule into a positive and a negative ion. The ionization gives to the partners in a molecule a directing electrical force which enables their affinity to play its part when suitable opportunity is offered. Even the small number of opponents of some of the theories of the modern school of Physical Chemistry acknowledge that Arrhenius and his school of Physical Chemists did a splendid service to the science of chemistry when they established the close relationship between ionization in electrolytic solutions and their chemical activity. This is particularly true of ionization and chemical reactions which proceed with a high velocity.

This, broadly speaking, is a picture which guided Arrhenius and others in their successful efforts to connect ionization and chemical reactions. They furnished a splendid verification of the prophetic intuition of Berzelius, Sir Humphrey Davy, and Faraday. Similar efforts have been made in other directions and they finally led us to the electrical theory of matter. They gradually suggested a new view of chemical reactions which is an extension of the view first revealed forty years ago by the study of ionization in electrolysis. Permit me now to give you a brief sketch of this advance in our knowledge of the atomic and molecular activity of matter. The path pursued by these efforts can be traced back to nearly forty years ago. It began when the earliest attempts were made to answer the question: why do gases conduct electricity? We were accustomed to think that gases were ideal non-conductors. It was found, however, that bodies carrying an electrical charge will gradually lose it by leakage through the surrounding gas. The word leakage of electricity meant, of course, that the surrounding gas conducts electricity; badly to be sure, but nevertheless it does conduct. Every school-boy who ever watched an electroscope was familiar with electrical leakage, but forty years ago nobody suspected that the commonplace phe-

nomenon, electrical leakage, would some day unlock the door of a chamber which guarded many secrets relating to the electrical activity of atoms and molecules.

The first step in the advancement of this knowledge was made when it was found that electrical leakage can be greatly increased by the action of external agents, like ultra violet light falling upon the surface of a charged body. The photoelectric cell, which plays a very important part in telegraphic transmission of pictures, is a very instructive illustration of this phenomenon. Guided by the theory of conductivity in electrolytes one was encouraged to imagine that the action of the ultra violet light produces an ionization of the gas molecules and that, just as in the case of electrolytes, this ionization is responsible for electrical conduction in gases. This guess was not a bad one, but it demanded an answer to a very perplexing question: How is the ionization produced by the action of ultra violet light? Observe now that a completely satisfactory answer to the question, how is ionization produced in electrolytes? was never given.

The search for a satisfactory answer to the question: How is ionization produced in gases resulted in the creation of the science of Electron Physics, one of the most beautiful creations in the history of science. Some future Homer in science will perhaps some day write an epic describing the wonderful adventures which scientific research, like an expedition into an unknown land, experienced on every step of its progress into the region of electrical conductivity of gases. The list of the heroes who played a glorious part in this expedition is as long as the list of heroes who found everlasting glory on the plains of Troy. But just as the name of Achilles rings in our ears whenever we hear Homer's Iliad mentioned, so the name of Thomson rings in my ears whenever ionization of gases is mentioned. This Thomson is Sir J. J. Thomson, Master of Trinity College, Cambridge, where immortal Newton composed his mathematical poem on *modern dynamics*, and where immortal Maxwell taught his electromagnetic theory to young J. J. Thomson, his successor in the chair of Physics at the University of Cambridge, and today Master of Trinity College, an honor much greater in many respects than to be the prime minister of England.

But pardon this digression; I forgot for a moment that my job this evening is to tell you a few things about "Ionization and Chemical Reactions" and not to recite poetry. But one cannot help losing control of his emotions whenever he contemplates the great scientific victories in the field of research relating to the electrical conductivity of gases.

Just as if imitating the method of procedure of the physical chemist who focused his attention upon the conductivity of electrolytic solutions of high dilution so the students of the electrical conductivity of gases focused their attention upon the conductivity of gases at low pressures. This was illustrated thirty-five years ago by the great revival of interest in the phenomena of vacuum tube discharges at extremely low gas pressures. The interest was rewarded by the discovery of the Roentgen rays thirty-one years ago. It was Thomson who first gave an experimental demonstration that the Roentgen rays are a radiation excited in the anode by the impact of small corpuscles moving with an enormous velocity and carrying tiny electrical charges of negative electricity from the negative to the positive electrode of the vacuum tube. Those who expected to find that these corpuscles were atoms carrying electrical charges which Faraday's law of electrolysis attaches to them were sadly disappointed. Thomson measured the ratio of this charge to the mass which carries them and found that this ratio is about eighteen hundred times as large as in the case of the smallest ion, the hydrogen ion. Nothing corresponding to that was ever found in electrolysis. Well, one was at liberty to imagine that Thomson's corpuscle was a tiny chip of an atom carrying a negative charge. Chip of an atom! Just think of it, who was bold enough in those days to imagine such a thing?

The discovery of radio-activity by Becquerel, thirty years ago, came to the rescue of the perplexed physicists. It was found that radio-active substances throw off positively as well as negatively charged corpuscles, the so-called alpha and beta rays, and also X-rays of great penetrativeness, called gamma rays in radio-activity. This discovery is one of the most remarkable discoveries ever made by man. Just think of it, a bit of a radio-active substance, say thorium, producing effects with ease and grace, some of which

Roentgen produced laboriously with huge induction coils and most carefully exhausted vacuum tubes. The alpha and the beta rays are deflected by the magnet, the gamma rays are not. Employing Thomson's experimental method it was found that the ratio of the charge to the mass was the same for the negative corpuscles, the beta rays, as in the case of the negative corpuscles of the vacuum tube, but for the positive corpuscles, the alpha rays, the ratio was smaller than that calculated for the hydrogen ion in electrolytic decompositions. That meant that the mass of the alpha corpuscles was larger than that of the hydrogen ion. The physicist was at liberty to imagine that the hydrogen ion is a chip of the alpha corpuscle. The physicist was puzzled more than ever, but in the course of a brief period of time the puzzle was resolved. It was found that the negative corpuscle was the same in all cases and it received the name electron. Its charge was accepted as the natural unit of negative electricity. The positive corpuscle corresponding to the alpha rays was found to be a helium atom with a mass four times as large as that of the hydrogen atom. Finally vacuum tube discharges revealed a positive corpuscle in which the ratio of the charge to the mass is the same as in the case of the hydrogen ion in electrolysis. It was found that its positive charge is numerically equal to the negative charge of the electron, and this became the natural unit for both electricities. It was also established by experiment that these corpuscles had no other mass except that due to their electromagnetic energy, that is the energy attached to their charges, the mass of the positive corpuscle being nearly two thousand times as large as the mass of the electron because its charge although numerically equal to that of the electron is two thousand times as concentrated. The mass of the hydrogen atom, for instance, is that corresponding to the electrical energy of its electrical corpuscles, that is, practically of its positive corpuscle. Matter and its mass as measured by the inertia reaction disappeared from the vocabulary of the physicist.

Such were the discoveries which forced upon the physicist the theory that the atoms of matter are electrical structures, built up of negative and positive corpuscles, of electrons and protons. Thus the hydrogen atom consists of a positive nucleus containing

one proton whereas a negative electron spins around it in orbital motion. The atom of helium has a positive nucleus, consisting of four protons cemented to each other by two electrons, and around this nucleus two electrons are moving in definite orbits, or to be more accurate the whole structure spins around its centre of gravity. Similarly every atom consists of a positive nucleus which is made up of protons and electrons which bind the protons to each other and of orbital electrons spinning around the centre of gravity of the structure. In other words each atom is a small solar system having a definite number of electronic satellites spinning with the central nucleus around the centre of gravity of the atom. The number of these orbital satellites is called the atomic number of the atom, and it is this number and not the atomic weight which determines the position of the atom in the Mendeleff series, thus determining its physical and chemical properties. According to this view of atomic structure all atoms are multiples of the hydrogen atom, which thus becomes the fundamental structural unit in the material universe. The fact that the atomic weight of heavier atoms is not an exact multiple of the atomic weight of hydrogen is a remarkable fact, but instead of militating against the electrical theory of matter it is one of its strongest supports. The discussion, however, of this fundamental fact in the electrical theory would lead me too far.

But you will undoubtedly ask, what additional light does all this electrical theory of matter throw upon Ionization and Chemical Reactions, which has been already described in connection with electrolytic ionization? A full answer to this question, though most interesting indeed, cannot be given in a brief address. The principal object of this lecture is to call your attention to certain phenomena which, I believe, are closely related to the science and art of the medical profession, and not to discuss them exhaustively. But one more point I must bring out as briefly and as clearly as I can. If the atoms persisted in that blessed state of beautifully coordinated orbital motion which I have just described to you there would be nothing of any importance to us going on in our stellar system. This stellar system would be a sleepy hollow in the universe, just as dead as the sleepy hollow cemetery at Tarrytown. There would be no light, no heat, no chemical reactions, and no organic life of any kind

anywhere. The persistence of that beautifully coordinated orbital motion in the atoms would represent a beautiful cosmos, but it would be a cosmos of death. The atomic and molecular activity in our stellar system is not a cosmos; it is a dynamic chaos, a greater chaos than that conceived by the liveliest imagination of ancient Greece. The electrical theory of matter as well as all our scientific knowledge demand such a chaos, in order to explain radiation, the most fundamental physical process in nature. To illustrate, consider the activity of a hot star, say our own sun. Its high temperature means that its atoms and molecules are in a state of violent and perfectly chaotic motion. Each atom rushes along just like a frenzied individual of a panicky mob. Billions and billions of collisions occur at every instant between the whirling atoms and at each collision orbital electrons are thrown out of their regular orbits. The serene atomic cosmos just referred to is smashed. During the return of the electrons from their temporary expulsion and exile the energy employed for their expulsion appears again as energy radiated out into space. Some of it reaches this earth, destined to sustain our terrestrial activity. That energy is the life energy of the sun, so that solar radiation may be described as the breath of life of the sun breathed into the nostrils of this terrestrial clay so that it may also live. But during the absence of the orbital electrons, expelled by the collisions, the atom is ionized; it is no longer electrically neutral; it is in a similar state as an ion in an electrolytic solution; it is electrically active. This type of ionization is not a mere fiction, invented to support the electrical theory of matter. The alpha, beta, gamma, and X-rays produce it in every gas and make the gas conductive. A charged electrometer placed in a gas chamber is universally employed to measure by the leakage of its charge the ionizing power of such rays. There are other ways of producing ionization of gases, and we understand to-day much better than we did forty years ago why ultra violet light increases the leakage from an electrically charged body. Bold investigators like Millikan do not hesitate to employ most violent means, in order to strip the atoms of most of their orbital electrons and in that state of extreme ionization the atoms display an intense eagerness to enter into chemical combinations as if anxious to cover up as speedily as possible their atomic nakedness.

The ionization of the atoms is generally recognized as a stimulant for chemical actions, particularly those which proceed at high speeds. The function of the most powerful ionizing agents known to-day, that is the alpha, beta, gamma, and X-rays and ultra violet light, becomes intelligible from this point of view. This point of view is in harmony with the electrical theory of matter which endeavors to explain chemical reactions as due to the electrical activity of the atoms and molecules. Electrolytic ionization is one way of establishing this activity, atomic ionization is another. There may be many other ways. Who knows? The prophetic intuition of Berzelli, Sir Humphrey Davy, and Michael Faraday, now a hundred years old, has been proved to be true. The forces of the electrical charges attached to the valencies of the atoms are the most powerful guides in chemical reactions.

PERIARTERITIS NODOSA

FRANCIS HARBITZ, OSLO

(Abstract of a paper delivered before The New York Academy of Medicine, October 7, 1926.)

If we disregard syphilitic and tuberculous arteritis, little is known about this disease.

In the first place may be emphasized the frequent findings of microbes and inflammations in the walls of the *capillaries* and in the *small arteries* in the skin in cases of epidemic meningitis. The lecturer mentioned similar findings in gonorrhea with *gonococcus-sepsis* and eruption in the skin, as well as in croupous pneumonia with blisters and *pneumococci* in the skin. He also mentioned the peculiar changes in the *capillaries* and *small arteries* in exanthematous typhus.

In the next place it was pointed out that we may also find similar inflammatory changes in the *smaller* and *middle-sized* arteries. As examples hereof the lecturer mentioned the peculiar and characteristic changes observed in *periarteritis nodosa*. In illustration thereof he briefly described: (1) a case (in a man aged 32) with changes in the arteries, in the intestinal canal, kidneys and liver, as well as incipient changes in the heart; (2) a case

(in a man aged 22) with changes in the arteries, in the muscles and in the nerves of the legs, as well as in the kidneys and heart.

A general description of the disease was given and it was classified into: (a) a gastro-intestinal type, (b) a renal type, (c) a nerve and muscular type, (d) a cardiac type, (e) a cerebral type and (f) a form with prominent changes in the skin.

The acute commencement of the disease and its duration were discussed, likewise its point of origin in the adventitia of the arteries and in the surrounding tissue and its development into chronic forms with cicatrization and defects in the organs.

It was pointed out that cured cases have been observed and that mild and abortive forms may be seen and are perhaps not rare, while the disease may also possibly be local, *i.e.*, occur only in a single organ.

Periarteritis nodosa must be regarded as an acute inflammation in the small arteries, undoubtedly of infectious nature, and occasioned by a specific virus, but this virus is still unknown. There is much to be said in favor of the view that the disease may be due to an animal parasite and therefore we ought to keep in view the possibility of the disease being communicated by means of insects.

Also in the *larger arteries*, including the aorta, there may happen to be found real inflammatory changes and of infectious nature, sometimes with microbes in the walls of the arteries, notably in puerperal infection, in typhoid fever, in scarlatina, in pneumonia, in *acute rheumatism* (with Aschoff's bodies), in *influenza* with secondary sepsis with streptococci and in other infections.

The lecturer briefly described a case of chronic illness with increasing atrophy in the face and eyes. There was here found a peculiar inflammation in the aorta and the large arteries of the neck and head and complete thrombosis and obliteration of the arteries in these parts of the body, which was the cause of the increasing atrophy. No microbes were found.

Finally it was pointed out that infectious forms of arteritis are by no means rare, but are perhaps of more frequent occurrence than has been supposed. They deserve to be studied more closely both anatomically and etiologically, whilst also clinically they present many features of interest.

Abstracts of Papers Presented at Section Meetings

*Combined Meeting of the Section of Neurology and Psychiatry,
and the New York Neurological Society,
November 9, 1926*

A CASE OF MULTIPLE DURAL NEOPLASMS

E. D. FRIEDMAN

Helen W., a German housewife of 44, was admitted to Mt. Sinai Hospital on September 4, 1926. She had been a sufferer from epilepsy since the age of 14. The attacks were left-sided at first and only later became generalized. They ceased five months ago. There have been no menses since February, 1926.

Her present illness began about one year ago with headache. This was chiefly occipital and was accompanied by a drawing sensation in the neck. The headaches became progressively worse and at times were associated with vomiting. She noted recently that her vision had become poor.

On the morning of her admission to the hospital, she complained of diplopia. She also spoke of dizzy spells and occasional twitchings of the right upper extremity. The family had observed that her memory was failing and that she had become flighty. In walking, she would turn her head to the right. Occasionally she suffered from nocturnal enuresis.

The physical examination revealed slight inequality of the pupils with a little irregularity of the left. The fundi showed a low grade of papilloedema. The other cranial nerves seemed negative except for slight left facial weakness and some paresis of the right 6th nerve. Hearing was normal and vestibular tests gave normal responses. There was slight weakness of the left arm and leg and mild hyperreflexia on the left. The abdominals were not elicited. There was no Babinski sign. There were no frank cerebellar signs in the limbs. When walking, the patient tilted her head backward with the chin directed to the right and the occiput to the left. There was some asynergia of gait and station and a tendency to veer to the right. Her visual fields were grossly normal and there were no disturbances in sensation.

She was facetious and jovial. The examination was punctuated by humorous comments on the part of the patient and she apparently had no insight into the gravity of her illness.

The general medical status revealed no abnormalities. Blood pressure was a bit low—100/65. Urine was negative. Spinal fluid showed only a moderate increase in pressure. The signs pointed both to the right frontal lobe and to the posterior fossa. Ventriculography was attempted but the patient soon afterwards succumbed as a result of paralysis of respiration.

The post-mortem examination revealed numerous smooth, white, hard tumors on the inner surface of the dura. Most of them lay near the midline. They were more numerous on the right side. More than 25 such growths were counted. There were, in addition, neoplasms, similar in character on the inferior surface of the right tentorium, in the region of the right pontofacial angle and on the posterior margin of the foramen magnum. All of these apparently took origin from the inner surface of the dura but did not infiltrate the brain. The surface of the brain presented the evidences of increased intracranial pressure. In the right frontal region, near the midline and extending on to the mesial surface of the hemisphere, there was a large area which was soft, friable and discolored; apparently degenerative in character, and contained in its depth free blood. The right cerebral hemisphere was swollen about this region and produced a concavity on the mesial surface of the left frontal lobe due to pressure. This mass was not adherent to the overlying meninges. The floor of the 3rd ventricle was thinned out and bulging. There was evidence of a pressure cone at the base of the cerebellum. There was an area of erosion on the inner table of the skull in the right frontal region.

The post-mortem diagnosis was: Multiple endotheliomata of the dura, with large area of softening and degeneration in the right frontal lobe.

THE CHANGING MANIFESTATIONS OF THE NEUROSES

I. S. WECHSLER

I wish to make some remarks on the changing manifestations of the neuroses, and offer some explanations. The observations which I have to make are not altogether novel, and the explanations are perhaps not quite correct, but I venture both in the hope of getting some criticism and some discussion.

When one looks over various papers and text-books, even as recent as the 1924 revised edition of Oppenheim, one finds considerable attention devoted to the manifestations of the neuroses which we never see—hysterical hemiplegias, other paralyses, aphonias, astasia-abasia, and all sorts of conversion signs. But all those cases were abundantly seen by the older observers. It would be comforting to offer as an explanation the assumption that we are the better diagnosticians, but it is altogether doubtful. Men of the type of Charcot, Moebius, Weir-Mitchel, Binswanger, etc., were very accurate observers and they undoubtedly saw all the manifestations of the neuroses which we do not see to-day. But we have definite proof that they were right. If you take the first quarter of this century in which few of the hysterical paralyses have been observed, you find one island wherein tens of thousands of patients showed just those symptoms. I refer to the war. During that period, whether it was the phlegmatic Englishman, the stolid German, the volatile Frenchman, the somber Russian, or the composite American, they all showed the hysterical palsies, stammering, blindness and so forth. It is evident therefore that those hysterical manifestations can and do occur. It is we who do not see them in civil practice.

My observations are based on rather extensive experience at the Vanderbilt Clinic, which has a yearly admission of about 2,000 patients, on work at the Mount Sinai Hospital and Dispensary, at the Montefiore and the Central Neurological Hospitals, the last two of which have chronic cases. Among the thousands of cases seen personally I recall but one instance of hysterical convulsions such as described by Charcot, one or two hemiplegias and monoplegias, and a few aphonias. The question

is, why don't we see them? Why do not other American neurologists see them? What has happened in so short a time, or has anything happened at all? It seems to me there must be some explanation.

If you look on a neurosis as an attempt at adjustment, and if you accept the opinion that a neurosis is the result of a conflict, then you must concede that both the older and more recent manifestations of the neuroses are all attempts at adjustment. What we do see are anxiety neuroses, phobias, so-called neurasthenias, compulsion neuroses, maladjustment cases, borderline types. The former may be designated as low somatic types of adjustment, and the latter higher psychological types. Both are the results of conflicts and attempts at adjustments which the patients must make in order to hurdle life's difficulties.

I think it is conceded by many that religion (by that I do not mean the philosophical or speculative aspects, but the ceremonial and ritualistic) represents in a measure a neurosis which is accepted and condoned by society. When a person makes the sign of the cross, puts on phylacteries or salaams to the east he does exactly what the compulsive neurotic does when he goes through his ritual, fixing his pillow, counting numbers, or doing certain other things; with this difference, that the social compulsive act is not in conflict with the social group. In religious ritual the neurotic has his outlet for the neurosis: he need not get into conflict with society by begetting a neurosis. The Jew putting on phylacteries in the synagogue is considered perfectly sane; let him do it in the street and he would probably be apprehended as queer. Religious ritual, then, offers an outlet for individual neuroses.

If you take a Catholic girl who is disappointed in love, takes the veil and enters a convent, thus marrying her ideal, she escapes an individual neurosis because she loses herself in a social neurosis. The same procedure suddenly followed by a Mohammedan, Jewish, or Protestant girl would arouse grave suspicions as to her sanity. Throughout the ages waves of religious movements (tarantula dances, flagellations, crusades) expressed themselves in hysterical manifestations. To this day we have in this country epidemic or endemic revivalist meetings, in which whole communities find hysterical outlet. It may be observed that the very

loud hysterical shrieks which fundamentalist ritualistic fervor employs against modernism are only the signs of helplessness in a losing fight, of infantile neurotic reactions in the face of advancing reality. They may insist on erasing evolution from textbooks; their fight is but the last gasp before the avalanche of knowledge that is coming on to overwhelm reaction.

You may ask, if my observation is correct, can it be that one generation has brought about such a change in the manifestation of the neuroses? Even if we only reckon the period of recorded history, almost a hundred generations, what does one generation amount to? But it is quite possible that the intense and very rapid diffusion of knowledge in recent years, the familiarization with scientific facts, the spread of the knowledge of evolution, the weakening of religious ritual, have tended to mature the sense of reality and gradually prevented the widespread infantile, low level types of reaction to conflicts arising from the struggle for adaptation. A child will express his displeasure in the face of conflict by kicking or screaming, but the adult can no longer adopt the same method. This may be one explanation; but I should like to offer another, perhaps even more theoretical and philosophical: A neurosis is the penalty one may pay for growing up, or for the unsuccessful attempt to grow up. Growing to adult state is bound up with a great many difficulties, with the need of hurdling obstacles in the path of life. Those who cannot hurdle those difficulties will react with neuroses at one or another time. We see that at puberty, in adolescence, in social and love life. The neurosis represents the attempt at adjustment, the failure in the conflict and the flight from reality.

The question in my mind is, is it possible that groups, like individuals, go through the same stages of development? May we say that phylogenesis repeats ontogenesis, the reverse of what happens in general organic life? Before I develop this point a little further I should like to cite a few statistics. I have taken the records of the patients admitted to the Vanderbilt Clinic for the past few years. Fifty-five and a half per cent. of the total number of admissions to the neurological department represent neuroses. The colored population of the clinic showed only twenty-nine per cent. of neuroses. Then I compared the incidence among the American negroes and the British West In-

dians. You will all agree with me that the British West Indian negro is a better type than the American negro. He is more intelligent, better educated, and socially superior to his American brother. The American negro had 27.5 per cent. neuroses, and the British West Indian negro 35.5 per cent., about 8 per cent. higher than the American. The negro with better opportunities and perhaps a little more freedom has developed neuroses to a greater extent.

Again merely stating the question:—Does the group of necessity develop neuroses in its march upwards? I do not know either the incidence or types of neuroses among the Japanese and Chinese; nor do I know whether neuroses exist among primitive peoples. A priori I should say that there can be no neuroses among primitive people, because their whole social existence is a neurosis, an infantile reaction to life. The group spirit and force of taboo are so great that there is no possibility of revolt. One cannot transgress social usage or taboo without incurring the punishment of death. Only civilized man can afford the luxury of a neurosis. I do not know whether my speculations apply to all groups. I am merely wondering whether we can speak of a neurosis as a manifestation of the group in its march up the scale of civilization as of the individual in his growth up the tree of life.

Occasionally a neurosis is the revolt against social hypocrisy which forces people into ways of living to which they cannot possibly get used. Sometime I shall write an essay entitled, *In Praise of Hypocrisy*, with apologies to Erasmus' *In Praise of Folly*. It seems to me that the very violence with which the social group reacts to the hypocrite betokens a defense mechanism on the part of all of us. It is quite possible that diffusion of psychoanalytic knowledge, the realization of the mental mechanisms constantly at play and the influence of the psychology of emotivity on human thought and action will affect our methods of adjustment. Thus far it is premature to say that it has affected behavior. Besides the subject of psychoanalysis is too vast for discussion in this connection; here I can merely hint at it.

In summing up I wish to repeat the observation that we do not see the types of neuroses that have been classically described

in years gone by; that the older types are low level or somatic reactions; and that what we see to-day are higher psychological manifestations. Only the methods of adjustment have changed, not the reactions of the individuals or the need for neuroses. If anything, the conflicts have become more intense, the needs for neuroses greater and the social casualties more numerous.

ENCEPHALITIC AMYOTROPHIES

AUGUST WIMMER, Copenhagen

A brief report is given of a number of some twenty cases with well marked systematic amyotrophies, most commonly with a bilateral and distal topography, the wasting of the muscles thus spreading more or less rapidly upwards. In a series of cases the initial stage was of a "hemiplegic" type, in two cases only the proximal muscles were affected first. A wasting starting in the legs is very rare.

In fatally progressive cases the bulbar muscles are involved, in two cases causing the death.

There is no strict parallelism between the degree of muscular wasting and that of palsy. The muscular fibrillation is rare whereas myoclonic jerkings are very frequent. Other encephalitic signs may be present, yet did marked parkinsonism only occur in one patient.

An absence of the tendon reflexes is rare and, if present, only partial, bearing upon one or two reflexes. As a general rule the tendon reflexes are overactive or we get clonus. Not infrequently there is a marked Babinski reflex. An increase in the muscular tone is often found.

Thus the total picture of the systematic encephalitic amyotrophies mostly is very much alike to that of *amyotrophic lateral sclerosis*, "Charcot's disease." We are dealing, then, with a combined lesion of the anterior horns and of the pyramidal tracts of the spinal cord.

A case with an almost pure "amyotrophic lateral sclerosis syndrom" is given together with the anatomical findings, *viz.*, combined lesions of anterior horns and pyramidal tracts through-

out the spinal cords and the bulbs. Thus, besides, encephalitic, inflammatory changes (perivascular infiltrations), such being present, also, in the brainstem and the basal ganglia without any parenchymatous changes.

Notwithstanding the seemingly "primary, systematic" degeneration of the spinal cord, the case is conceived as being a true encephalitic one. The spinal lesions should be more correctly spoken of as "funicular" and paralleled with those lesions found in pernicious anemia and in some cases of syphilis of the spinal cord (Erb's syphilitic spastic paralysis). The "systematic lesions" are supposed to be the direct effect of the encephalitic virus *in loco*.

Some suggestions are made in regard to the pathogenic conception of "Charcot's disease." The decrease of the syndrom of "amyotrophic lateral sclerosis" in chronic epidemic encephalitis gives a certain support to the idea of an infectious origin of this syndrom, as advanced by a series of authors.

Section of Pediatrics, November 11, 1926

ESSENTIALS IN THE PREVENTION OF TUBERCULOSIS IN INFANCY AND CHILDHOOD

S. ADOLPHUS KNOPF

Neither man nor woman has a right to enter marriage relations when actively ill with tuberculosis. Slightly tuberculous individuals with no activity, or apparently arrested cases may marry when it is possible to postpone their progeny until the disease is completely arrested. When, because of ignorance or religious prejudice an actively tuberculous woman becomes pregnant the best hygienic care must be provided for her, if possible in a sanatorium, and continued after childbirth. An expert obstetrician should attend to the confinement and facilitate delivery, if necessary by the employment of forceps, to prevent the exhausting bearing down efforts of a woman in labor, which are likely to bring about a pulmonary hemorrhage. At times, pregnancy seriously aggravates the tuberculous condition, particularly after

parturition, but the interruption of pregnancy in such cases should only be resorted to after careful consultation with two colleagues—an internist and an obstetrician—and with the consent of the husband.

The newly-born child of tuberculous parents should, if possible, be provided with a healthy foster mother and removed from tuberculous environments as soon as possible after birth so as to avoid infection by contact. When the provision of a foster mother is not feasible, artificial feeding must of course be resorted to either in a selected healthy family or in an infanatorium. There are a few organizations now in the United States trying to do the work similar to Graneher's "*Oeuvre pour la preservation des enfants tuberculeux*," but not nearly enough. There does not seem to be a typical infanatorium in existence in the United States at this time and the establishment of such life-saving institutions is urgently advocated by the author. The Farmingdale infanatorium had to be abandoned for lack of means. It is hoped that Calmette's immunizing method, by the use of non-tuberculeogenic modified bacillus, may materially aid in the prevention of an ultimate development of tuberculosis.

To prevent tuberculosis by ingestion, only the milk of tuberculin-tested cows should be given to children, and when the source of the milk supply is doubtful, sterilization should be resorted to. Orange or tomato juice should be added to the sterilized milk for the baby to supplant the destroyed vitamins.

Anemic children, or those of feeble constitution, so well designated by Graneher as presenting typical physiological poverty, should be tested with the "von Pirquet" (preferably intradermal) semi-annually up to the age of five. The same course should be pursued if the reaction is negative, when symptoms lead to the assumption that the presence of a tuberculous condition is likely. In examining small children for tuberculosis, one should bear in mind the frequent localization of tuberculosis in the hilus, the bacillus having lodged in the tracheobronchial lymph nodes and the difficulty encountered because we have no cooperation from the child in the production of the various types of breathing in bringing forth râles by cough or the elucidation of voice sounds. X-ray pictures therefore become an indispensable necessity. One should never fail to look for infected tonsils

which so often serve as portals of entrance of the tubercle bacillus.

All children of pre-school and school age and up to puberty should be tested for tuberculosis once a year. Positive reaction should lead to closer physical examination and preventive treatment if necessary. Annual general physical examination of all children attending school must become a universal practice if we are to combat tuberculosis in children and thus prevent them from becoming tuberculous adults, a burden to themselves and to the community.

It should be the aim of the pediatricist to prevent diseases in children predisposed to tuberculosis, such as diphtheria, scarlet fever, measles, and whooping cough, by the best prophylactic measures (vaccines, sera, and hygiene). Children showing stigma of serofulosis or rachitis should be submitted to heliotherapy as a prophylactic measure at the earliest possible time. Open air schools should be provided for all anemic, strongly predisposed, actually tuberculous, serofulous, and rachitic children.

The greatest danger of developing tuberculosis in the weak, predisposed, anemic, or underfed child comes with the approach of and during adolescence. We should be guided in the education, the choice of trade, profession or other calling for our young people by their physical condition before we let them out of sight. A physical examination should precede the choice of an occupation for our boys and girls. Semi-annual examinations during childhood and annual examinations throughout life are strongly advocated as one of the best means to combat tuberculosis in infancy, childhood, and adult life.

Section of Otology, November 12, 1926

PATHOLOGY OF BRAIN ABSCESS

JOSEPH H. GLOBUS

Under the title of "mobilization of tissue components of the brain as defense forces for the isolation and limitation of suppurative cerebral processes," observations were presented on membrane formation in brain abscesses. Lantern slides depicting

ing the histological changes noted in the early as well as in the late stages of abscess formation were shown. It was pointed out that even in the very early stage of focal suppuration in the brain, there is already evidence of capsule formation, as shown by proliferation of blood vessels by extravasation, and migration of lymphocytic elements into the zone enveloping the suppurating focus. This is followed by a progressive organization of the extravasated elements with the result that a distinct protective wall is formed which separates the abscess from the neighboring brain tissue. This capsule, if allowed to develop, grows in its thickness, acquires a dense fibrous character and provides ample protection to the adjacent tissue from the infectious, purulent process. Indeed, there are seen directly outside of this capsule vessels with adventitial infiltration. The infiltrating cells are mainly mononuclear in character and they as well as the proliferating, in the same zone, glia cells are elements called upon to participate in the construction of a protective limiting membrane. Such changes should for this reason not be regarded as evidence of an extension of the suppurative processes. Attention was also called to the fact that abscesses which have their localization in the so-called silent areas of the brain are lesions which often, by virtue of their location, do not give rise to early manifestations or fail to display signs and symptoms in the early stages of their development. In such abscesses the process of encapsulation goes on uninterruptedly. They often remain undisturbed by surgical measures, and in such event may undergo complete obliteration through the progressive growth of the capsule. It is particularly true of frontal lobe abscesses, which serve as good illustrations of the healing properties of the abscess capsule and emphasize the self-limiting character of a suppurative process in brain tissue. The question, however, is raised as to what extent can one rely upon this process of encapsulation in the treatment of brain abscesses. It can be best answered by the surgeon, who, it is thought, will take into account the above observations on the inherent potencies of the component tissues of the brain to isolate and combat a cerebral suppurative process.

ETIOLOGY AND TREATMENT OF RECTOCELE

B. P. WATSON

It is now generally recognized that it is fascia and not muscle which constitutes the principal support of the pelvic organs. Where support is given to any structure by muscle and fascia combined it is the latter which is essential. There can be no cystocele and no rectocele if the proper fascial supports of the bladder and rectum remain intact even if levator support is withdrawn.

The object of the present communication is to emphasize that just as the pubo-cervical layer of the pelvic fascia is essential to the support of the bladder, that cystocele results from its injury and that it can be made use of in the repair of the cystocele, so the fascia propria of the rectum is essential to the support of the anterior rectal wall, that rectocele cannot occur unless it is injured and this fascia can be made use of anatomically to effect its repair. The levator muscles covered by the anal and levator fascia support the lateral and posterior walls of the rectum but they give no support to the anterior rectal wall except its lowest part. This has been pointed out by Frank and other observers and has been confirmed by Caverly in a recently made dissection of the pelvic floor. The essential support of the anterior rectal wall is by the fascia propria.

The torn edges of this fascia can be easily demonstrated in the operative treatment of every case of rectocele and the fascial sheet can be defined and united over the prolapsed anterior rectal wall so as to control it absolutely.

According to the writer's experience the definition of the layer is best effected by scissors dissection. Incision is made round the posterior part of the vaginal orifice between skin and mucous membrane. Blunt pointed scissors are inserted through this incision midway between the middle line posteriorly and the anterior extremity. They are pushed upwards between the vaginal wall and the underlying structures, lateral to the rectum, and opened out. In this way the proper level of dissection is got at

once. The same is done on the opposite side. A firm grasp of this small area of separated vaginal wall is taken on each side with forceps. When these forceps are held upwards the level for dissection towards the middle line is at once seen and can be quickly carried out, with scissors or knife, with no danger of injuring the rectum. When the scar tissue in the middle line is thus dissected to its upper limit the raising of the flap can be easily effected. As the flap is raised two bands of tissue appear which at the upper limit of the rectocele are attached firmly to the under surface of the vaginal flap and between which, in the middle line, the rectal wall bulges. These two bands are the torn edges of the fascia propria of the rectum. If a little more lateral dissection of the flap is now carried out the levator muscles, covered by fascia, are exposed on each side. Instead of uniting this mass across the middle line, the fascia propria is separated from its under-surface by blunt scissors dissection and then appears as a broad fascial sheet. Beginning above the level of the rectocele sutures are passed through the face of this sheet on either side bringing two rolled edges together in the middle line thus controlling the rectocele. The sutures are under no tension and have no tendency to cut. When the suture is completed the rectocele is cured.

The operation is completed by suturing the levator muscle and fascia across the middle line and closing in the skin wound.

The important point in the operation is that the rectal fascia is united across the middle line without tension and exact anatomical conditions are restored. The union of the levator muscles does not reproduce normal anatomy and involves a considerable degree of tension.

The results so far obtained by this method have been most satisfactory.

PROCEEDINGS OF ACADEMY MEETINGS,
DECEMBER, 1926

STATED MEETING

Thursday evening, December 2, at 8:30 o'clock

ORDER

- I. Executive session.
Election of officers.
Action on amendments to the Constitution and By-Laws proposed at the Stated Meeting of November 4.
- II. Papers of the evening.
 - a. Some aspects of the pathology of the liver, Douglas Symmers.
 - b. Diagnosis of diseases of the liver with respect to tests of function, Nellis B. Foster.
 - c. Lesions of the liver requiring surgical therapy, Allen O. Whipple.

STATED MEETING

Thursday evening, December 16, at 8:30 o'clock

ORDER

- I. Executive Session.
- II. The Anniversary Discourse.
"The Physician: The Larger View," Nicholas Murray Butler.

SECTION MEETINGS

SECTION OF SURGERY

Friday evening, December 3, at 8:30 o'clock

ORDER

- I. Reading of the minutes.
- II. Presentation of cases.

- a. 1. Postoperative mechanical obstruction, twentieth day.
- 2. Postoperative obstruction, fifth day.
- 3. Postoperative paralytic ileus, seventeenth day, J. William Hinton.
- b. 1. Lipoma of cecum—intussusception.
- 2. Fibroma of small intestine—intussusception, William Barelay Parsons, Jr.

III. Papers of the evening.

- a. Foreign bodies in the intestine, Louis Carp.
- b. Chills in acute appendicitis, Ralph Colp.

IV. Demonstration of specimens.

- a. Foreign body in 22 months old baby.
- b. Foreign bodies in an adult, Richard Lewisohn.

SECTION OF DERMATOLOGY AND SYPHILIS

Tuesday evening, December 7, at 8:00 o'clock

ORDER

I. Presentation of patients.

a. From the Vanderbilt Clinic:

- 1. Perifolliculitis suffodiens et abscedens.
- 2. Urticaria pigmentosa (adult).
- 3. Moniliasis of nails.
- 4. Hodgkin's disease with skin lesions.
- 5. Tuberculosis gingivae.
- 6. Lepra (6 cases).
- 7. Congenital syphilis with alopecia areata.
- 8. Erythema induratum resembling syphilis.
- 9. Extensive tuberculide.
- 10. Parapsoriasis (2 cases).
- 11. Lupus erythematosus treated with colloidal gold.
- 12. Liehen serofulosorum.

J. Gardner Hopkins, A. Benson Cannon, George C. Andrews, Lawrence K. McCafferty, Herman Sharlit.

b. From the Good Samaritan Dispensary:

- 1. Thromboangitis obliterans (2 cases).
- 2. Acrodermatitis chronica atrophicans (2 cases).

3. Actinomycosis.
4. Parapsoriasis.
5. Urticaria pigmentosa (adult).
6. Dermatitis papillaris eapillitii.

A. Walzer, B. Lapowski.

e. Miscellaneous cases.

II. Discussion.

III. Executive session.

SECTION OF NEUROLOGY AND PSYCHIATRY

*Combined meeting of the section with the New York
Neurological Society*

Tuesday evening, December 7, at 8:30 o'clock

ORDER

- I. Reading of the minutes.
- II. Papers of the evening.
 - a. High cervical lesions in the guise of combined system disease, E. D. Friedman.
 - b. Laminectomy; its uses and indications, Alfred S. Taylor.
Discussion by Charles A. Elsberg, Byron Stookey, B. Sachs.
 - c. Prostitution of expert testimony in the criminal courts, Foster Kennedy.
Discussion by Joseph Collins, Smith Ely Jelliffe, M. Allen Starr.
 - d. Neokinesis; the contribution of the mammals to the evolution of the brain, Frederick Tilney.
Discussion by Smith Ely Jelliffe, Walter M. Kraus.

SECTION OF PEDIATRICS

Thursday evening, December 9, at 8:30 o'clock

ORDER

- I. Reading of the minutes.
- II. Papers of the evening.

- a. A hospital dictary for children, as used in the City Hospital, Walter Lester Carr.
Discussion by Charles Hendee Smith.
- b. The significance of the changes in the chemistry of the blood in pertussis, Joseph C. Regan (by invitation), Alexander Tolstovhov (by invitation).
Discussion by Stafford McLean.
- c. Treatment of behavior problems in childhood, Dudley D. Shoenfeld (by invitation), William V. Silverberg (by invitation).
Discussion by Monroe A. Meyer (by invitation), Herman Schwarz.

III. General discussion.

SECTION OF HISTORICAL AND CULTURAL MEDICINE

Thursday evening, December 9, at 8:30 o'clock

ORDER

- I. Reading of the minutes.
- II. Papers of the evening.
 - a. Demonstration of some rare medical books of the 15th and 16th centuries, Charles L. Dana.
 - b. The history of pathology, Major James F. Coupal, U. S. A., Washington, D. C. (by invitation).
- III. Discussion, James Ewing, Ward J. MacNeal.

SECTION OF OTOTOLOGY

Friday evening, December 10, at 8:30 o'clock

ORDER

- I. Reading of the minutes.
- II. Presentation of cases.
 - a. Diabetic mastoiditis due to the streptococcus mucosus capsulatus, with intracranial complications, Mark J. Gottlieb.
 - b. Acute suppurative labyrinthitis. Serous meningitis, recovery, Richard T. Atkins.

- c. Traumatic mastoiditis with post-operative signs suggestive of an intracranial complication, Walter L. Horn.
- d. Otitic meningitis running an unusually prolonged course, Samuel Rosen (by invitation).
- e. Labyrinthine findings in:
 - 1. A case of pontine angle tumor.
 - 2. A case of tumor of the petrous bone, giving symptoms of cerebellar disease, Ralph Almour (by invitation).
- f. Jugular bulb thrombosis, multiple abscesses, recovery, Floyd C. McDaniel (by invitation).
- g. Procedure suggested for the diagnosis of sinus thrombosis, Reuben Ottenberg.
- h. Primary jugular bulb thrombosis presenting certain unusual features, Joseph Druss (by invitation).
- i. Two cases of cavernous sinus thrombosis complicating mastoiditis, occurring (1) before operation; (2) after operation, Wesley C. Bowers.

III. Discussion.

SECTION OF GENITO-URINARY SURGERY

Wednesday evening, December 15, at 8:30 o'clock

ORDER

- I. Reading of the minutes.
- II. Presentation of instruments.
 - A hypo-diathermic electrode, Joseph A. Hyams.
- III. Presentation of cases.
 - a. Squamous infiltrating carcinoma of the bladder (two cases) cured by radium six years and three years respectively, Benjamin S. Barringer.
 - b. A case of ureteritis cystica, John H. Morrissey.
- IV. Paper of the evening.
 - Surgical aspects of polycystic kidney disease, with lantern slide demonstration, Robert E. Cumming, Detroit, (by invitation).
- V. General discussion.
- VI. Executive Session.

SECTION OF ORTHOPEDIC SURGERY

Friday evening, December 17, at 8:30 o'clock

ORDER

- I. Reading of the minutes.
- II. Presentation of cases.
 1. A case of calcinosis in a boy 9 years of age (lantern slides), Sara Welt-Kakels.
 2. From the Brooklyn Jewish Hospital.
 - a. Traumatic separation of the symphysis pubis, Morris Koven (by invitation).
 - b. Fracture of the acetabulum, Benjamin Koven (by invitation).
 3. From the Brooklyn Hospital.
 - a. Myositis ossificans with operation, G. H. Hunter (by invitation).
 - b. Rupture of biceps tendon (lantern slides), Donald E. McKenna (by invitation).
 4. From the United Israel Zion Hospital.
 - a. Avulsion of the tibial tubercle, operation, Joseph Buchman (by invitation).
 - b. A new operation for gluteus medius paralysis. Demonstration of case, David R. Telson (by invitation).
 5. From Long Island College Hospital.
 - a. Pectus spine fusion, J. C. Rushmore (by invitation).
 - b. Tuberculosis of the astragalus, H. C. Fett (by invitation).
 - c. Shelf operation for congenital dislocation of the hip, J. L'Episcopo.
- III. Paper of the evening.

Reconstruction operations on the hip joint, E. G. Brackett, Boston (by invitation).

SECTION OF OPHTHALMOLOGY

Monday evening, December 20, at 8:30 o'clock

ORDER

- I. Reading of the minutes.

- II. Presentation of cases.
 - a. Case of adeno-carcinoma of the upper lid extending into the orbit, H. W. Wootton.
 - b. Vascularized gelatinous plaque in anterior chamber, Geo. H. Bell.
- III. Paper of the evening.

The anatomic relationship of the eye to the accessory sinuses of the nose, Simon L. Ruskin (by invitation).

Discussion by Arnold Knapp, L. W. Crigler.

SECTION OF MEDICINE

Tuesday evening, December 21, at 8:30 o'clock

ORDER

- I. Papers of the evening.
 - a. The present status of the classification of Bright's disease, Rolfe Floyd.
 - b. The renal and cardio-vascular disorders of pregnancy—Their relation to certain general medical problems, William Worthington Herrick.

Discussion, B. P. Watson (by invitation), Herman O. Mosenthal, Jean Corwin (by invitation).
- II. Executive session.

SECTION OF LARYNGOLOGY AND RHINOLOGY

Wednesday evening, December 22, at 8:30 o'clock

ORDER

- I. Reading of the minutes.
- II. Presentation of cases.

Erosion of columella and anterior septum following encephalitis lethargica, Frank C. Keil (by invitation).
- III. Papers of the evening.
 - a. Implantation of radium seeds in malignancies of the larynx and œsophagus. Preliminary report with presentation of cases, Frank R. Herriman.
 - b. Injection of iodized oil into the sphenoid sinus, A. Lobell (by invitation).

Lantern slides.

SECTION OF OBSTETRICS AND GYNECOLOGY

Tuesday evening, December 28, at 8:30 o'clock

ORDER

- I. Reading of the minutes.
 - II. Case report.
Primary carcinoma of the fallopian tube, David N. Barrows.
 - III. Papers of the evening.
 - a. A factor in the etiology of ectopic gestation, Henry C. Falk.
Discussion by Frederick C. Holden, Elise L'Esperance.
 - b. Urologic disorders following surgery in the female pelvis, Isador W. Kalin (by invitation).
Discussion by Walter T. Dannreuther, Daniel R. Ayres (by invitation).
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RECENT ACCESSIONS TO THE LIBRARY

- Ball, J. M. Modern ophthalmology. 5. ed.
Phila. Davis, 1926, 2 vols.
- Beaumont, G. E. & Dodds, E. C. Recent advances in medicine.
3. ed.
Lond. Churchill, 1926, 408 p.
- deBeer, G. R. An introduction to experimental embryology.
Oxford. Clarendon pr., 1926, 148 p.
- Bentley, A. O. A text-book of pharmacy.
Lond. Baillière, 1926, 540 p.
- van den Bergh, A. A. Hijmans. Vorlesungen über die Zuckerkrankheit.
Berlin. Springer, 1926, 226 p.
- Bernhard, O. Light treatment in surgery.
Lond. Arnold, 1926, 317 p.
- Besredka, A. Immunisation locale.
Paris. Masson, 1925, 251 p.
- Bousfield, P. The pathology, diagnosis and treatment of functional nervous diseases.
London. Heinemann, 1926, 212 p.
- Campbell, W. R. & Porter, M. T. A guide for diabetics.
Balt. Williams, 1926, 259 p.

- Carleton, H. M. Histological technique.
Lond. Oxford pr., 1926, 398 p.
- Cokkins, A. J. The reproduction of life.
Lond. Baillière, 1926, 287 p.
- Crandall, I. B. Theory of vibrating systems and sound.
N. Y. Van Nostrand, 1926, 272 p.
- Deniker, J. Les races et les peuples de la terre. 2. éd.
Paris. Masson, 1926, 750 p.
- Ellis, H. Man & Woman. 6. ed.
Lond. Bladk., 1926, 563 p.
- Evans, E. A psychological study of cancer.
N. Y. Dodd, 1926, 226 p.
- Fairbairn, J. S. Obstetrics.
London. Oxford pr., 1926, 230 p.
- Fowler, H. W. A dictionary of modern English usage.
Oxford. Clarendon pr., 1926, 742 p.
- Freeman, F. N. Mental tests.
Lond. Oxford pr., 1926, 503 p.
- Gibson, A. G. The heart.
Lond. Oxford pr., 1926, 108 p.
- Graham, G. The pathology and treatment of diabetes mellitus.
2. ed.
Lond. Oxford pr., 1926, 230 p.
- Haberland, H. F. O. Die operative Technik des Tierexperimentes.
Berlin. Springer, 1926, 336 p.
- Henry, G. W. Essentials of psychiatry.
Balt. Williams, 1925, 199 p.
- Hollingworth, H. L. The psychology of thought.
N. Y. Appleton, 1926, 329 p.
- Immunochemical studies. Ed. by C. H. Browning.
Lond. Constable, 1925, 239 p.
- Jackson, A. S. Goitre.
N. Y. Hoeber, 1926, 401 p.
- Kato, G. The further studies on decrementless conduction.
Tokyo. 1926, 163 p.
- Kells, C. E. Three score years and nine.
New Orleans. Author, 1926, 563 p.

- Kingsley, J. S. Outlines of comparative anatomy of vertebrates.
3. ed.
Phila. Blakiston, 1926, 470 p.
- Kirk, J. B. Hints on equipment & health.
London. Baillière, 1926, 120 p.
- Latter, O. H. Biology.
London. Murray, 1926, 197 p.
- Lieske, R. Kurzes Lehrbuch der allgemeinen Bakterienkunde.
Berlin. Borntraeger, 1926, 338 p.
- MacKenzie, Sir J. & Orr, J. Principles of diagnosis and treatment in heart affections. 3. ed.
Lond. Oxford pr., 1926, 242 p.
- Mills, F. E. I. Meatless meals made easy.
London. Theosoph. pub. house, 1926, 64 p.
- Mohs, E. L. Principles of home nursing. 2. ed.
Phila. Saunders, 1926, 307 p.
- Murchison, C. Criminal intelligence.
Worcester. Clark univ., 1926, 291 p.
- Paul, K. C. The carrier problem.
Lond. Oxford pr., 1926, 102 p.
- Porritt, N. The abdomen in labor.
Lond. Oxford pr., 1926, 73 p.
- Proceedings of the Connecticut state medical society. 1926.
- Proceedings of the Imperial social hygiene congress at the British Empire exhibition, Wembley. Oct. . . . 1925.
Lond. Brit. soc. hyg. council, 1926.
- Pryde, J. Recent advances in biochemistry.
Lond. Churchill, 1926, 348 p.
- Riesman, D. Thomas Sydenham, clinician.
N. Y. Hoeber, 1926, 52 p.
- Robbins, S. D. Stammering and its treatment.
Bost. Stammerers' inst., 1926, 121 p.
- Ruddiman, E. A. Pharmacy. 2. ed.
N. Y. Wiley, 1926, 379 p.
- Stoddart, W. H. B. Mind and its disorders. 5. ed.
Lond. Lewis, 1926, 593 p.
- Taylor, L. W., Watson, W. W. & Howe, C. E. General physics for the laboratory.
Boston. Ginn, 1926, 247 p.

- Tod, H. Diseases of the ear. 2. ed.
 Lond. Oxford pr., 1926, 333 p.
- Waggoner, H. D. Modern biology; its human aspects.
 Boston. Heath, 1926, 482 p.
- Watson, J. H. Fundamentals of the art of surgery.
 Lond. Heinemann, 1926, 349 p.
- Williams, L. Obesity.
 Lond. Oxford pr., 1926, 171 p.
- Wooten, K. W. A health education procedure.
 N. Y. Nat. tub. assoc., 1926, 420 p.

COMMITTEE ON MEDICAL EDUCATION

APPROVED OPPORTUNITIES FOR GRADUATE MEDICAL STUDY IN NEW YORK CITY

As a result of the annual survey which was made by the sub-committees of the Committee on Medical Education, the Committee announces that the following courses and internships have been approved:

DERMATOLOGY-SYPHILOLOGY

1. *New York University.*
 Comprehensive course of one or two years' work.
 Group of seven courses.
2. *Columbia University.*
 Comprehensive course of two years' work.
 Group of seven courses.
3. *Cornell University Medical College.*
 Group of four courses.
4. *New York Skin and Cancer Hospital.*
 Two clinical courses.
 Three special internships.
5. *Polyclinic Medical School and Hospital.*
 Two courses.
6. *Post Graduate Medical School and Hospital.*
 One assistantship.
7. *Mt. Sinai Hospital.*
 One clinical course.
8. *Good Samaritan Hospital.*
 One clinical course.
9. *Bellevue Hospital.*
 Attendance in clinic.

10. *Kings County Hospital.*

Two courses.

INTERNAL MEDICINE

1. *Columbia University.*

Five weeks' practical course, full day. At the Presbyterian Hospital.

Group of 15 short courses. At the Mount Sinai Hospital.

Conferences in medical diagnosis and pathology. At the Presbyterian Hospital.

Two short courses in gastro-enterology. At the Vanderbilt Clinic.

Group of three short courses in chronic diseases. At the Montefiore Hospital.

SCHOOL OF TROPICAL MEDICINE.

Eight months' course.

2. *Post Graduate Medical School and Hospital.*

Three seminars of one month each, full day's work.

Eighteen special courses.

3. *Polyclinic Medical School and Hospital.*

Six weeks' course, full day.

4. *Cornell University.*

Course in metabolism methods.

5. *Beth Israel Hospital.*

Course in cardiology.

6. *Graduate Courses in Brooklyn.*

Four intensive courses.

Twenty-five extension courses.

7. *Special Internships.*

One appointment in Mount Sinai Hospital.

One appointment in Montefiore Hospital.

Four appointments in Bellevue Hospital.

Four appointments in City Hospital.

Eight appointments in Willard Parker Hospital (contagious diseases and Pediatrics).

Four appointments in Riverside Hospital (contagious diseases and Pediatrics).

Six appointments in Kingston Avenue Hospital (contagious diseases and Pediatrics).

Two appointments in Queensboro Hospital (contagious diseases and Pediatrics).

One appointment in Beth Israel Hospital.

One appointment in Long Island College Hospital.

One appointment in Post Graduate Hospital.

Four appointments in Bellevue Hospital.

One appointment in Metropolitan Hospital.

One appointment in Lenox Hill Hospital.

NEUROLOGY AND PSYCHIATRY

1. *Columbia University.*
Group of eighteen courses at various hospitals.
2. *Neurological Institute.*
Post graduate clerkship.
3. *Post Graduate Medical School and Hospital.*
Two special courses.
4. *Polyclinic Medical School and Hospital.*
Two clinical courses.
5. *Cornell University.*
Three courses.
6. *In Brooklyn.*
Three extension courses.
7. *Special internships.*
Two in Bellevue Hospital.
Two in Mount Sinai Hospital.
One in Montefiore Hospital.
Four in Neurological Institute.

OBSTETRICS AND GYNECOLOGY

1. *New York Polyclinic Medical School and Hospital.*
Six months' combined course, full day.

OBSTETRICS

1. *Lying-In Hospital.*
Two courses.
2. *Post Graduate Medical School and Hospital.*
Manikin course.
3. *In Brooklyn Hospitals.*
Seven extension courses.

GYNECOLOGY

1. *Post Graduate Medical School and Hospital.*
One month's seminar, full day's work.
Eight special courses.
2. *Polyclinic Medical School and Hospital.*
One short course.
One operative course (cadaver).
3. *Columbia University.*
Two short courses at Mount Sinai Hospital.
4. *In Brooklyn Hospitals.*
Two extension courses.

SPECIAL INTERNSHIPS IN OBSTETRICS AND GYNECOLOGY

Eight in Lying In Hospital.
Twelve in Woman's Hospital.

One in Nursery and Child's Hospital.
 Six in Long Island College Hospital.
 Three in Manhattan Maternity Hospital.
 Eight in Berwind Maternity Clinic.
 One in Harlem Hospital.
 One in Mount Sinai Hospital.
 One in Roosevelt Hospital.
 One in Brooklyn Hospital.
 Nine in Sloane Hospital for Women.
 Thirteen in Bellevue Hospital.
 One in Community Hospital.
 One in Bronx Maternity Hospital.
 Three in Jewish Maternity Hospital.
 One in Brooklyn Hebrew Maternity Hospital.
 One in New York Foundling and St. Ann's Maternity Hospital.
 Eight in City Hospital.
 One in Lenox Hill Hospital.

OPHTHALMOLOGY

1. *Post Graduate Medical School and Hospital.*
 Two four-month seminars. Full day.
 Eleven special courses.
 Two internships.
2. *Polyclinic Medical School and Hospital.*
 Combined eye, ear, nose and throat course. Eighteen months.
 One operative (Cadaver).
 One short clinical course.
 One refraction course.
3. *New York Eye and Ear Infirmary.*
 Nine special courses.
 Twelve internships.
4. *Manhattan Eye, Ear and Throat Hospital.*
 Five internships.
5. *Knapp Memorial Eye Hospital.*
 Two internships.
6. *Graduate Courses in Brooklyn.*
 One intensive course.
 Three extension courses.
7. *Bellevue Hospital.*
 Three internships.
8. *Mount Sinai Hospital.*
 One internship (Combined).
9. *City Hospital.*
 Four internships (Combined).
10. *Lenox Hill Hospital.*
 One internship (Combined).

4. *New York Hospital.*
One course.
5. *New York Eye and Ear Infirmary.*
One course.
6. *Eighteen special internships.*
7. *Seven special externships.*

SURGERY

1. *New York University and Bellevue Hospital Medical College.*
Two and one-half years' comprehensive course.
2. *Columbia University.*
Group of six courses in surgery and gynecology at the Mount Sinai Hospital.
3. *Post Graduate Medical School and Hospital.*
Seminar in general surgery, full day. Six weeks to six months.
Four special courses.
Seven special courses in operative surgery.
4. *Polyclinic Medical School and Hospital.*
Nine months' combined course. Three short courses.
5. *Graduate Courses in Brooklyn.*
Twelve extension courses.
6. *Special internships.*
One in Post Graduate Hospital.
Four in Mount Sinai Hospital.
One in Montefiore Hospital.
Two in Skin and Cancer Hospital.
Three in New York Hospital.
Two in Bellevue Hospital.
One in Lenox Hill Hospital.
One in Beth Israel Hospital.
One in Metropolitan Hospital.
One in Fifth Avenue Hospital.
One in St. Mark's Hospital.

UROLOGY

1. *Post Graduate Medical School and Hospital.*
Six months' comprehensive course, full day.
Nine special courses.
2. *New York Hospital.*
One six months' course.
One special internship.
3. *Roosevelt Hospital.*
One private course.
One special internship.
4. *Graduate Courses in Brooklyn.*
Four extension courses.

5. *Bellevue Hospital.*
Two special internships.
6. *Long Island College Hospital.*
One special internship.

MEDICAL SCIENCE OR PRE-CLINICAL SUBJECTS

ANATOMY

Cornell University Medical College.

Seven courses.

New York University.

Two courses.

Columbia University.

One course.

In Brooklyn.

One intensive course.

BACTERIOLOGY AND IMMUNOLOGY. LABORATORY TECHNIQUE

Cornell University Medical College.

One course.

New York University.

Two courses.

Columbia University.

Three courses.

Post Graduate Medical School and Hospital.

Five courses.

CHEMISTRY, BIOCHEMISTRY AND METABOLISM

Cornell University Medical College.

Four courses.

New York University.

Three courses.

Columbia University.

Seven courses.

Post Graduate Medical School and Hospital.

Five courses.

PATHOLOGY

Cornell University Medical College.

Four courses.

New York University.

Two courses.

Columbia University.

Four courses.

Post Graduate Medical School and Hospital.

Seven courses.

Polyclinic Medical School and Hospital.

Three courses.

In Brooklyn.

One extension course.

PHARMACOLOGY

Cornell University Medical College.

Two courses.

New York University.

Three courses.

PHYSIOLOGY

Cornell University Medical College.

Two courses.

New York University.

One course.

Columbia University.

Two courses.

MEDICAL VISITORS TO NEW YORK

The New York Academy of Medicine desires to extend a welcome to all members of the medical profession who may visit New York. It offers its facilities in the hope that they may be helpful in making the visitors' stay both pleasant and profitable.

The Library (open from 9 A. M. to 5 P. M.) is one of the largest of its kind in the United States, and over a hundred readers visit it every day. It contains upwards of 140,000 books and over 100,000 pamphlets, which are fully catalogued. Its files of American and foreign periodicals are very complete.

Meetings. Besides the two stated meetings of the Academy held each month there are monthly meetings of the twelve different groups of Fellows organized into sections devoted to various branches of medicine and surgery and to historical and cultural medicine. These stated and section meetings are open to all physicians and to medical students. In addition to these meetings many medical societies of the city hold their meetings at the Academy. There are usually one or more meetings held at the Academy each night of the month except Sundays and holidays.

The Committee on Public Health Relations. At the office of the Committee on Public Health Relations, pertinent information

is gathered with regard to the health activities of the municipal and voluntary social service agencies. Studies are made of problems bearing on public health administration as well as on the work of hospitals, dispensaries, and other agencies dealing with the community relationships of medicine, and reports are issued. Some of these reports are available for distribution.

Bureau of Clinical Information. The Bureau is maintained by the Committee on Medical Education. It offers detailed information regarding opportunities for graduate medical study in New York and other cities of the United States and Canada. The Bureau has prepared a guide in which the opportunities for clinical study in the hospitals of the city are listed and described. It also publishes a daily bulletin of medical and surgical clinics of the city. Physicians are invited to make the Bureau their headquarters while in the city.

OPENING OF THE NEW BUILDING

The opening of the new building of The New York Academy of Medicine on Fifth Avenue and 103rd Street was celebrated by a dinner at the Waldorf-Astoria Hotel on the evening of November 17 in honor of the newly-elected Honorary Fellows. Formal opening exercises were held at the new building on the next afternoon, followed in the evening by the presentation of the newly-elected Honorary Fellows, and the Carpenter Lecture by Professor Michael I. Pupin, of Columbia University. The Library was opened for consultation on the following morning, November 19, having been closed for the preceding ten days while the books were being moved from the old building on Forty-third Street.

THE DINNER

The banquet hall of the Waldorf-Astoria Hotel was completely filled by the guests, when after the elaborate dinner had been disposed of Dr. George D. Stewart introduced as the first speaker Dr. Harvey W. Cushing, of Boston, surgeon-in-chief of the Peter Bent Brigham Hospital. Dr. Cushing spoke of the library as a factor in the medical field, giving a brief outline of the history of the Boston Medical Library Association, which was founded over

a hundred years ago. Dr. Stewart next introduced Hon. James J. Walker, Mayor of the City of New York, who said, among other things, that when it became necessary for him to appoint a Commissioner of Health he consulted the Academy of Medicine. Dr. George E. de Schweinitz, professor of ophthalmology, University of Pennsylvania, spoke as a representative of the College of Physicians of Philadelphia. Dr. William Sydney Thayer, professor emeritus, Johns Hopkins University, pictured the emotions which would be felt by Laennec, the anniversary of whose birth happened to coincide with this celebration, if it were possible for his spirit to take part in these festivities. Sir Ewan John McLean, professor of obstetrics, University of Wales, Cardiff, spoke briefly as the representative of the British Medical Association.

FORMAL OPENING

The formal opening of the new building on the afternoon of November 18 began with an invocation by the Reverend Henry Sloane Coffin. The president of the Academy, Dr. Samuel A. Brown, presented a brief address on "The Services of the Academy in Medical Progress," and Dr. Arthur B. Duel, chairman of the building committee, reviewed the building of the Academy. An informal reception followed, tea being served and the guests invited to inspect the building.

In the evening Honorary Fellowships were conferred on the Honorary Fellows, the citations being read by Dr. Linsly R. Williams, director.

AMENDMENTS TO THE CONSTITUTION AND BY-LAWS

At a Stated Meeting of the Academy held December 2, the amendments to the Constitution and By-laws proposed at the Stated Meeting of November 4, were adopted. The amendments are as follows:

Article VI, Section 2a, of the Constitution: The Committee on Library shall consist of five members, each one of whom shall be elected for a term of five years, one retiring and one being elected each year.

2b. The Committee on Admission shall consist of nine members, each of whom shall be elected for a term of three years, three retiring and three being elected each year.

Article XVII, By-laws—Admission Fee and Dues:

Section 1. Each and every newly-elected Fellow shall pay an admission fee of fifty dollars except as herein set forth. . . .

Section 2. The annual dues of Fellows residing or having an office within twenty-five miles of the City Hall, New York City, shall be \$40. These dues shall be payable semi-annually. The annual dues of Fellows residing twenty-five miles or more from the City Hall, New York City, shall be \$10. The annual dues of Associate Fellows shall be \$20.

ANNOUNCEMENTS

There are still on hand a limited number of photographs of the dinner given by the Fellows of the Academy to the newly-elected Honorary Fellows, which was held on November 17. The price is three dollars.

The Council has decided that the meetings of the Trustees and of the Council be held on the same day, that is the fourth Wednesday of each month.

By direction of the Council a house committee of three Fellows has been appointed by the President to advise with the Director as to house rules.

DEATHS OF FELLOWS OF THE ACADEMY

The Council of the Academy, at its meeting held November 24, took the following action in the death of Dr. Jacobus:

“In the death of Dr. Arthur Middleton Jacobus, The New York Academy of Medicine has lost an old friend and loyal Fellow, who had for years served the Academy as Recording Secretary, Statistical Secretary and Historical Secretary.

“In addition, Dr. Jacobus served as a member of the Board of Trustees for twenty years, from 1893 to 1912, and also as a member of the Council during this period.

"Dr. Jacobus was deeply interested in the welfare of the Academy and always scrupulously attentive to his duties, he rendered a great service to the Institution.

Be it, therefore,

"RESOLVED: That the Council of The New York Academy of Medicine hereby records its appreciation of his services to the Academy and its own sorrow in the loss of a valued former member; and, be it further

"RESOLVED: That a copy of this resolution be sent to his family and published in the BULLETIN."

ERNEST SIMONS BISHOP, M.D., 15 West 73rd Street, New York, N. Y.; graduated in medicine from Cornell University Medical College, 1908; elected a Fellow of the Academy February 6, 1913; died November 15, 1926. Dr. Bishop was a member of the County and State Medical Society, a Fellow of the American Medical Association, a Fellow of the American College of Physicians, a member of the American Public Health Association, a member of the American Therapeutic Society, and a member of the Society of Alumni of Bellevue Hospital. He was consulting physician at St. Mark's Hospital, and visiting physician at St. Joseph's Hospital.

SAMUEL JEROME DRUSKIN, M.D., 1 West 123rd Street, New York, N. Y.; graduated in medicine from Cornell University Medical College, 1902; elected a Fellow of the Academy January 4, 1918; died November 23, 1926. Dr. Druskin was a member of the County and State Medical Society, a Fellow of the American Medical Association, a Fellow of the American College of Surgeons, and a member of the American Society for the Advancement of Science. He was attending obstetrician at Sydenham and Jewish Memorial Hospitals, attending obstetrician and associate gynecologist at Beth David Hospital, and attending surgeon at Jewish Maternity Hospital.

CHARLES SCHRAM, A.B. (Yale, 1881), A.M., M.D., 64 East 86th Street, New York, N. Y.; graduated in medicine from Harvard Medical College, 1886; elected a Fellow of the Academy May 30, 1894; died November 27, 1926. Dr. Schram was a member of the

County and State Medical Society, and a Fellow of the American Medical Association.

JOHN GARDNER PERRY, M.D., 371 Commonwealth Avenue, Boston, Mass.; graduated in medicine from Harvard Medical School, 1863; elected a Fellow of the Academy April 1, 1880; died December 3, 1926.

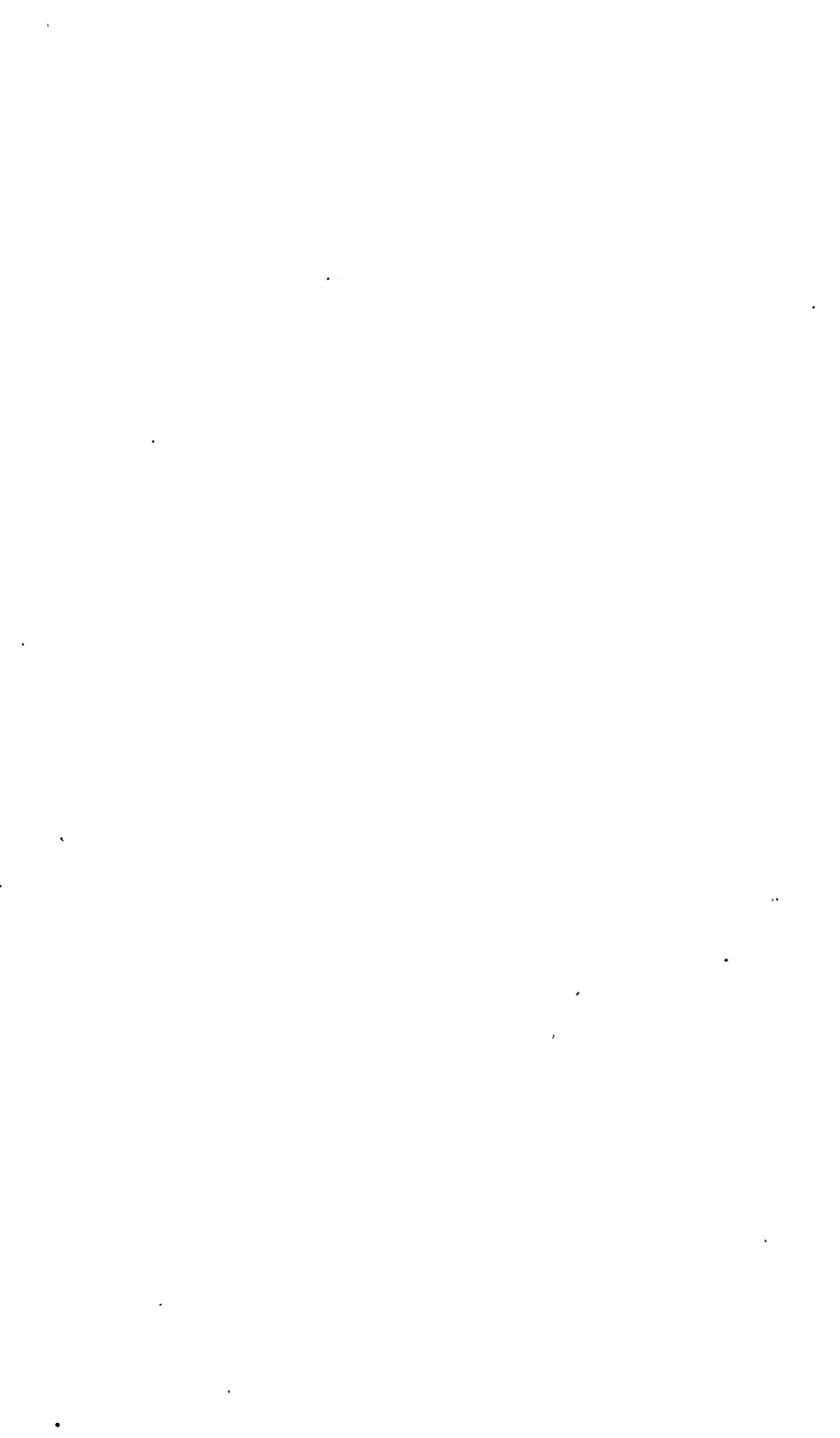
GLENWORTH REEVE BUTLER, M.D., A.M. (Hamilton College, 1880), Se.D. (Hamilton College, 1904), F.S.Sc., LL.D., 226 Gates Avenue, Brooklyn, N. Y.; graduated in medicine from the Long Island College Hospital, 1880; elected a Fellow of the Academy October 5, 1893; died December 6, 1926. Dr. Butler was a member of the County and State Medical Society, a Fellow of the American Medical Association, a Fellow of the American College of Physicians, a Fellow of the American Climatological Association, a member of the Pathological Society, senior physician at Methodist Episcopal and Brooklyn Hospitals, consulting physician at Coney Island, Kingston Avenue, Long Island College, Bikur-Cholim, Zion, Portchester, Bushwick, Norwegian, Brownsville and East New York, and Broad Street Hospitals.

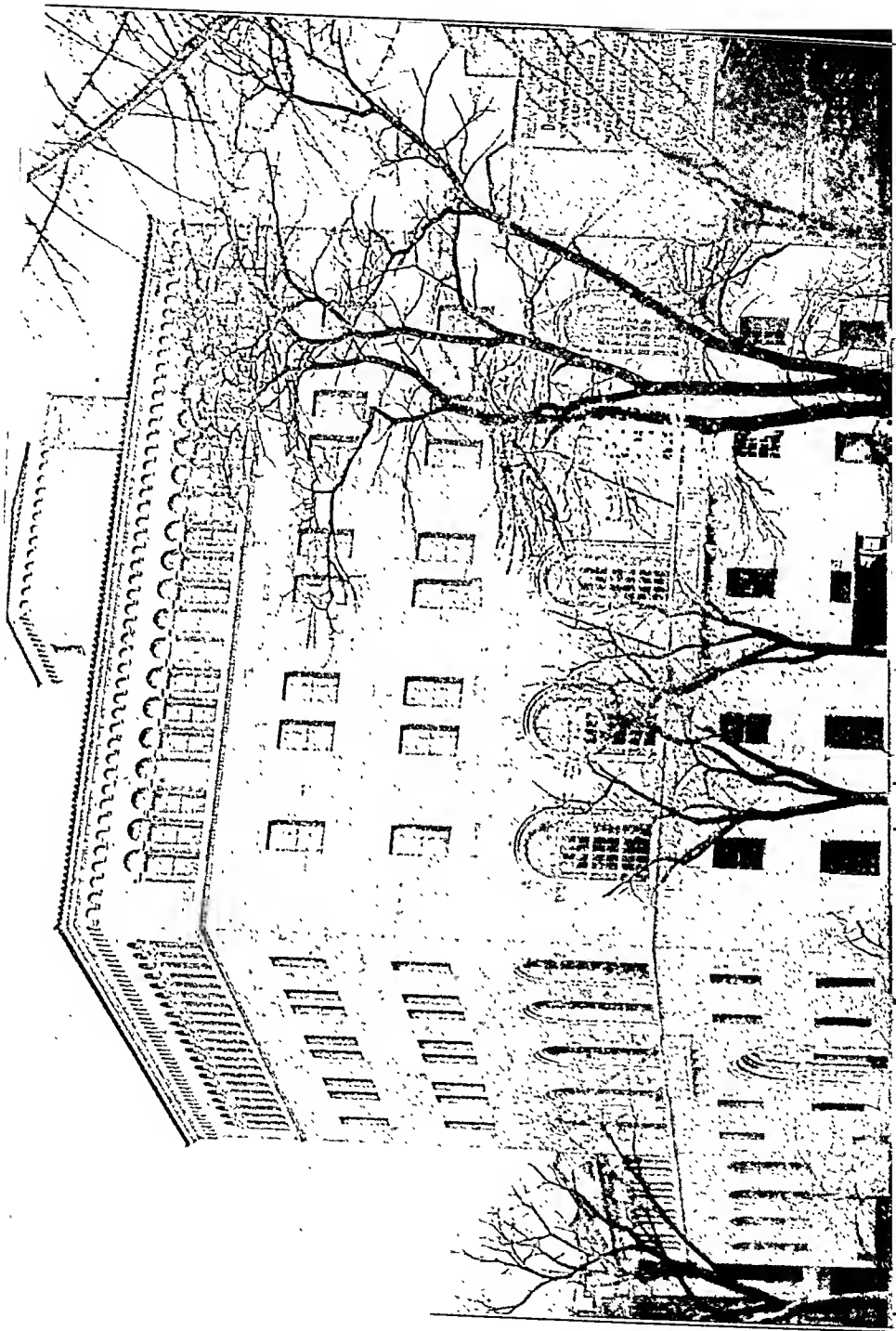
The following resolution was passed by the Council of the Academy at its meeting of December 22:

"Dr. Glentworth R. Butler was a loyal Fellow of The New York Academy of Medicine and Vice-President from 1911 to 1914. By his interest, pleasing manner and medical skill he soon forced his way to the top of the medical profession in Kings County. He was associated with the Brooklyn Hospital, the Long Island College Hospital, and was a teacher of note in the Long Island College Hospital Medical College. He was the author of text books and many other articles on medicine.

"The Council of The New York Academy of Medicine hereby records its sense of loss and desires that a copy of this minute be attached to the record of the proceedings of the Council and a copy published in the BULLETIN of the Academy and sent to the family of Dr. Butler."

ARTHUR SEYMOUR TENNER, A.B., M.D., 70 East 56th Street, New York, N. Y.; graduated in medicine from the College of Physicians and Surgeons, 1896; elected a Fellow of the Academy November 2, 1916; died November 30, 1926. Dr. Tenner was a member of the County and State Medical Society, a Fellow of the American Medical Association, attending eye surgeon at Midtown Hospital, and eye surgeon at Post Graduate Hospital.





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THE HISTORY OF HEATING, VENTILATION AND LIGHTING

It was not a physician but an engineer (Carnot) who first stated the principle of mathematical physics which is basic for the heating of buildings and habitations, viz., that heat cannot flow from a colder to a warmer body. The normal temperature of our blood (37.5° C. or 98.6° F.) is ordinarily higher than the temperature of our surroundings, so that we function best and feel best when we are shedding heat to our environment. If an atmosphere (above 65° C. or 80° F.) tends to heat our bodies above normal requirements, we are uncomfortable and below par. Thus heating is inevitably bound up with ventilation, the aim of which today is an atmosphere cooler than our blood and devoid of humidity. At the same time, both heating and ventilation have to do with lighting, since an ordinary arc light is 120 times more illuminative and economic of energy than a gas burner and vitiates as much air in a room as $1\frac{1}{2}$ men, while a gas burner uses up as much air as 4 men and an oil table lamp as much as 7 people. We can protect ourselves from cold but to protect ourselves from humid heat we need, like the unfortunate King of Moab, "a chamber of cooling" (Judges, III, 20),¹ such as A. M. Feldman has made for the Kühn-Loeb bank, or the cool room of Mount Sinai Hospital. What Gorgas tried to do for the miners of the Rand expresses the modern ideal of ventilation, viz., more air, purer air, air cooler than our body temperatures, so that we may shed heat according to the second law of thermodynamics, air free from the exasperating humidity engendered by the respi-

¹ Revised version, "a summer parlor."

ration, perspiration and effluvia of animal bodies.² Investigation of the history of these subjects has been meagre, as dealing with such dry husks as dates of inventions and mathematical computations, yet it is none the less compact of a certain human interest.

Prehistoric and primitive man enjoyed the very best way of heating, ventilation and lighting, namely, the sun, "the light of common day" and the "common air." Primitive feeling about these things is reflected everywhere in literature and art. The Greeks equated Zeus with the skies, Apollo with the sun, Artemis with the moon. *Astra castra, lumen numen*. Many races have been virtual sun-worshippers and fire-worshippers, as witness the impressive invocations to sun and skies in the Prometheus Bound of Æschylus (*O dios aether*), in Paradise Lost, (*Hail! Holy Light!*), in Siegfried (*Heil dir Sonne! Heil der Licht!*). The origin of the Promethean fire is legendary or obscure. Some savages were fain to regard it as a swift-moving, all-devouring animal. But the friendly hearth came to be the sign and symbol of man's home—

"Heilig ist mein Herd: heilig sei dir mein Haus"—³

and the Roman slogan for defence of home and country (*pro aris et focus*) implies the dedication of the centric fireplace (*focus*) to the Lares or tutelary dieties guarding the household. As German archaeologists have recently shown, the Assyro-Babylonian house was evolved from without inwards, with a single eye to defence from nomad enemies and wild beasts: high walls and paved courtyard first, then the quadrangular house, with fireplace in the middle of the floor. The normal Aryan house was evolved from within outwards, implying an advance in creature comforts upon the bare, stark necessity of *qui vive* and constant fighting. The underground caves of prehistoric man, the serried rows of ridge-ventilated Egyptian houses, the brazier fires of Greek palaces, the Roman hypocausts, the igloo of Lap and Esquimaux, the smelly, sod-built hovels of the primitive Scotch, the Irish cabins, the Scandinavian and English cottages, the huddled walled towns of the Middle Ages, the Norman castle with its jealous winding

² See C.-E. A. Winslow, *et al.* Report of The New York State Commission on Ventilation, New York, 1923.

³ Walküre, Act I, sc. 2.

stairs, the sensible, high-vaulted hearth of the Persians, the highly ornate fireplaces of the French Renaissance, illustrate the enormous ingenuity expended upon heating and ventilation. The open fireplace is perhaps the most picturesque detail in the history of hygiene.⁴ The heat of an open fire is radiated heat and in the most primitive habitation, good air circulation was secured by crevices in the loose construction. Such a house was, in the phrase of Terence, *plenus rimarum*, full of chinks. The heat of a stove at ordinary temperature is convected heat in process of becoming radiant. In such interiors, glass window-panes, where existent, make for draughts in winter time, in accordance with Carnot's principle and the discovery of Pettenkofer, that air can pass even through the thickest masonry. The evolution of the stove, furnace, boiler and radiator coil from the open fireplace is a complex history, but worthy of attention.

The first great advance upon the hearth and tripod brazier of the ancients was, curiously enough, the ultramodern Roman invention of central heating,⁵ which is probably destined to be the most economic device for community heating in the future.

The Romans possessed, as Sudhoff maintains, a remarkable intuitive or immanent hygienic sense. In their sewers, water supply, waterclosets and heating plants, they actually achieved feats in practical sanitation without conscious hygienic intention, *i.e.*, without knowing why. Engineers tell us that successful heating of a large room depends, not upon the cubic air space, which is vitiated when overheated, but upon the area of floor, walls and windows and the extent of their pervasion by cold outside, so that warm floors (say in a cathedral) will make a room seem warm even when the inspired air is fresh and cold. It follows from Carnot's theorem that the hardest interior to heat is a greenhouse. As fire from the old Greek tripod or brazier sometimes killed by monoxide poisoning, the Romans hit upon the device of a ventilated, extramural, underground heating-plant (*fornax*, furnace) of log embers, leading into a hollow space underneath the floor of the house (*hypocaustum*) which was supported by uprights (*suspensuræ*) and connected with the walls in all four corners by hollow tiles, communicating with similar spaces in the adjacent rooms and upper stories

⁴ The story has been delightfully told by J. P. Putnam in "The Open Fire-place in all Ages." Boston, 1881. 2 ed., 1886.

⁵ See O. Krell: *Altrömische Heizungen*, Munich, 1901; and for Roman remains in England, which included even hot-water piping, see W. Berman [R. Meikleham]: *On the History and Art of Warming and Ventilating Buildings*. 2 vols. London, 1845.

and eventually discharging smoke and gases by an outside vent. This invention, attributed to Sergius Orata (100 B. C.), is mentioned by the younger Pliny (Ep. 1, 2, No. 17) and Seneca (who also mentions window-panes), and is described at full length in the *De architectura* of Vitruvius (circa 50 B. C.), and while first applied to public bath houses, became common in the dwellings of the wealthy about 10 A. D. The oldest specimen excavated was found in the *caldarium* (sweating room) of the old and new *thermae* at Pompeii. Other hypocausts were discovered in the baths of Caracalla, in a villa at Herculaneum (Winckelmann), in the Emperor Hadrian's palace at Treves and in the *thermae* of St. Barbara in the same city (circa 286-388 A. D.). Actual smoke pipes are found in the remains of the Saalburg. Hypocaustal heating thus penetrated to the northern marches (Germany) and became common in Britain, as evidenced by Roman remains at Dover, Chester, Cirencester, Lincoln and other towns, but died out in Italy during the decline of Roman power.

Although Ctesias (400 B. C.) mentions the burning of natural gas by fire-worshippers in Asia Minor and although bath-houses in Byzantium were heated by oil from the Caspian Sea region (about 1400 A. D.), heating in the Middle Ages was effected mainly by the open fire, which, in Anglo Saxon houses, was usually in the center of a room. Ornate window panes of "royal glass" were revived by the Arabs and are mentioned in Chaucer's *Dream* as decorative luxuries. In Spain, the charcoal brazier was wheeled about, like viands in hotels. In Italy, China and India, it is still carried about the person, to become a source of monoxide poisoning or even of cancer. Porcelain stoves or "coekle-ovens" were known in Sweden in the 9th century and during the 13th century spread to Germany, where iron stoves were well known by 1500. In the Southern and Western countries, progress was slower. Chimneys, a necessity of the inset or walled fireplace, exist at Pompeii but were not revived in Italy until the 14th century. In mediæval France, the fireplace, with highly ornate mantelpiece and chimney, became a veritable *motif* for elaborate decoration, as evidenced by such specimens as those in the Louvre, the Hôtel de Ville at Lyons, the house of Jacques Cœur (Bourges), the Hôtel de Cluny (Paris), the triplex fireplace at Poitiers and other examples depicted by Viollet-le-Duc.⁶

⁶ A. F. Viollet-le-Duc: *Dictionnaire raisonné de l'architecture française du XI^e au XVI^e siècle*. Paris, 1854-68. Also, his *Histoire de l'habitation humaine*. Paris, 1875; and the pictures in Putnam's *Open Fireplace*, Boston, 1886, *passim*.

The most effective type for reflecting heat was the high vaulted fireplace of the Turks and Persians. The original cooking stove was a pile of stones heated by fires underneath, like an army incinerator. From these, stone ovens or furnaces were evolved. In the castle of the Teutonic Order at Marienburg, a number of subterranean furnaces of this kind were employed for central heating during the 13th–17th centuries. In 1822, they were renovated by the Prussian government, with very good heating in bitter weather. The ventilation of mines by fans, wind-shields and pumps for foul air was first described in the *De re metallica* of George Agricola (1546).

The 17th century is remarkable for the correct proportioning of the fireplace, chimney and mantel by Dr. Louis Savot (1579–1640), who, in 1624, cut down its width and added a smooth flue for smoke abatement, with such subsequent improvements as Winter's ventilating fireplace (1658) and Dalesme's smokeless stove (1681); and the beginnings of the long series of trial-and-error experiments on ventilating the Houses of Parliament, which, as Billings observes, comprise the whole history of ventilation.⁷

In 1660, Sir Christopher Wren began by cutting large square holes in each corner of the ceiling with valved funnels above. As there was no supply of fresh air for circulation, these merely brought down cold draughts on the members from the roof. In 1723, Dr. Desaguliers added to these chimneys, tubes which were heated to produce upward suction of vitiated air. The housekeeper, Mrs. Smith, disapproved, as interfering with her comforts, and the members suffered from stuffy air whenever she forgot to light the accelerating fires. The doctor then tried sundry fans and blowers up to 1736, but in spite of the remarkable work of the Rev. Stephen Hales on the ventilation of ships and prisons (1758), nothing further was done until 1811, when Sir Humphry Davy attempted to ventilate Parliament by boring many holes in the floor for ingress of fresh air, with heatable tubes and upper chimney arrangements, as before. The total failure of this plan, for which the Lords declined to pay anything, elicited the snickering epigram:

“For boring twenty thousand holes
The Lords gave nothing—damn their souls!”

The large horizontal heating flues beneath the floor (100' x 14" x 18") gradually cracked, permitting ingress of furnace gases, and, in consequence, the woodwork caught fire in 1834 and both Houses were burned. Between-

⁷ J. S. Billings: *Ventilation and Heating*, N. Y., 1893, 26–41, *passim*.

whiles, the Marquis de Chabannes had introduced steam-heating, with foul air shafts above. In 1835, Dr. D. B. Reid ventilated the new Houses by boring nearly a million holes in floors and seats for maximum ingress of air, "with elaborate arrangements for filtering, warming and tempering the air supply." This system proved satisfactory for a long time.

In the 18th century, following the discovery of the gases of the atmosphere by Black (1757), (1766), (1772), Priestley (1771), Scheele (1771) and Lavoisier (1775), the physiology of respiration, begun by Boyle (1660), Hooke (1667), Lower (1654) and Mayow (1668), was completed by Black (1754), Priestley (1772), Lavoisier (1775), Laplace (1780-85), and Lagrange (1791). The invention of the three thermometers of Fahrenheit (1714), Réaumur (1730) and Celsius (1742), of the steam engine by Watt (1765), of the viable gas-jet (1779) and the Argand burner (1784), gave a new impetus to heating and lighting.

The theory of the ventilating fire place as a conic section was stated by Nicolas Gauger (1713) and the advantage of the elliptical or parabolic surface over the old rectangular species (for maximum reflection of heat) was demonstrated in practice. From such inventions as Benjamin Franklin's Pennsylvanian fireplace (1745), Montalembert's inverted smoke-flue (1763) and Count Rumford's investigations of hearth fires (1796), the modern stove was evolved. Hot air heating became common, *e.g.*, in the Neues Palais at Potsdam (1740-86), the City Theatre and Lunatic's Tower of Vienna (1765-90) and the Clinic at Mainz (1792). The use of both steam-heating and hot-water heating in greenhouses was the first step toward modern central heating. Hot air heating of buildings by stoves of boiler brass invested with a shell of masonry (cockle-ovens) was in vogue up to 1824. During 1801-8, Sir Humphry Davy produced a viable carbon (electric) arc light. The union-jet or "fishtail" gas-burner was invented by Neilson of Glasgow in 1820. Carnot's treatise on the motor power of heat (1824) with the subsequent investigations of Mayer, Joule, Clausius, the Thomsons, Helmholtz, Gibbs, Maxwell, Boltzmann, Nernst and Planck, created the modern science of thermodynamics. Bischoff introduced a successful gas-heater in 1839, and in 1847 James Young distilled petroleum, which was in use as an illuminant by 1853. Wunderlich's treatise on clinical thermometry was published in 1868. Central heating came into vogue in Germany about 1870, and was operated by low pressure steam (0.3 atmospheres) by Bechem and Post in 1878. The books of General Morin (1854) and Max von Pettenkofer (1875), with the later investigations of Flüge (1905), Haldane (1913), Leonard Hill (1913) and Barcroft (1914-25) on humidity, heat, stuffiness and anoxæmia are landmarks in the history of ventilation. The Welsbach burner was perfected during 1885-93. In 1886 and 1896, the American and German Societies of Heating and Venti-

lating Engineers were respectively founded. Electric heating was introduced by Crompton & Co. (London) in 1892. Electric lighting (in full swing by 1914) was improved by the Edison, Nernst, Finsen, Bolton, tungsten, ultraviolet and radium lamps. Central heating (by steam) was first applied to habitations on a big scale by Holly at Lockport, N. Y., in 1880. Central heating by natural gas had been common in the Western states and was in use at Fredonia, N. Y., as early as 1821. The prime movers of central heating in Germany⁸ (usually by warm water) were the Siemens brothers, Heinrich Wolpert, Hermann Fischer, Hermann Rietschel (1847-1914)⁹ and Hermann Reeknagel (1868-1919).¹⁰

It will be apparent from this slight sketch that present problems as to the central-heating of great cities at basic sources, with reference to economy of fuel and transportation, along with the separate heating, lighting and ventilation of commercial plants, ateliers, prisons, municipal buildings, theatres, concert halls, mines, garages, railway trains, ships and vehicles, are subjects of vast scope in which the work of the individual becomes a mere coefficient in their historic developments. Public hygiene, even more than medicine, now utilizes every branch of human activity from advanced mathematics to mechanical and manual labor, and in these developments the great electric and central heating plants have done important work. Whether we like it or not, this absorption of individual effort and achievement in vast cooperative social endeavors will probably be the note of the medicine and hygiene of the future. For ready reference as to facts and dates, some of the salient landmarks of our subject will be found in the subjoined

CHRONOLOGY OF THE DEVELOPMENT OF HEATING, VENTILATION AND LIGHTING

Prehistoric: Sunlight; open air; open fire in caves.

Babylonians: Detached houses in courtyard; stone oven (cairn) in center of house.

Egyptians: Houses in rows; small windows; ridge ventilation; wind conductors (mulgufs).

Greeks: Hearths and braziers; wood charred for smoke abatement.

400 B. C. Ctesias mentions burning of natural gas by fire-worshippers.

100 B. C. Roman central heating of baths by hollow chamber under floors, attributed to Sergius Orata.

10 A. D. Roman central heating extended to upper stories of dwellings.

9th century: Porcelain stoves (Kakle) known in Scandinavian countries.

⁸ For the history of central-heating up to 1870, see H. Vetter: *Gesundheits-Ingenieur*, München, 1907, XXX, Festnummer, 10-25; 1914, XXXIV, 757-767.

⁹ Obituary: *Gesundheits-Ingenieur*, München, 1914, XXXVII, 201-203.

¹⁰ Obituary: *Ibid.*, 1919, XLII, 104; 352.

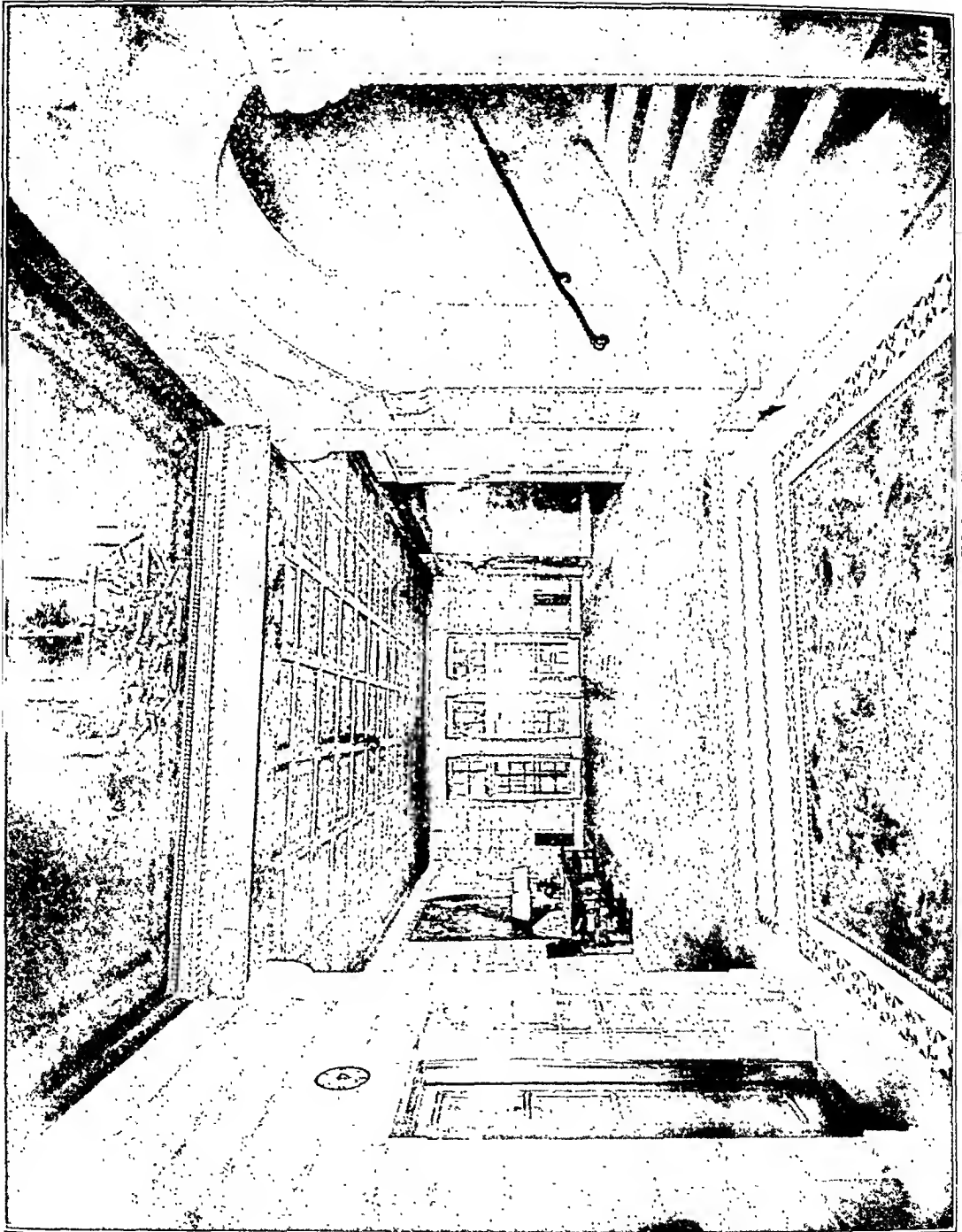
- 13th century: Central heating in Marienburg Castle (Prussia). Porcelain stoves in Germany.
1400. Byzantine baths heated by oil.
Chimneys pictured by Leonardo and artists of the Cinquecento.
1490. Moselle stove-maker invited to fair at Frankfurt a. M.
1556. Georg Agricola describes ventilation of mines (*De re metallica*).
1618. Franz Kessler mentions stoves of iron and porcelain (zigzag shape).
1624. Louis Savot invents narrow fireplace (inside air), with flue (Louvre).
1625. Cornelius Drebbel proposes thermostat (in effect in 1650).
1652. Sir Hugh Platt proposes steam heating for greenhouses.
1658. Sir John Winter invents ventilating fireplace, with grate and valve (outside air).
1660. Robert Boyle proves air to be essential to life and combustion.
Sir Christopher Wren attempts ventilation of Houses of Parliament.
1667. Robert Hooke shows that respiration is effected by blood changes in the lungs.
1668. John Mayow theorizes as to chemical nature of blood changes in respiration.
1669. Richard Lower oxygenates venous blood.
1674. Denis Papin experiments with miniature boiler (digester).
1681. Dalesme invents "smokeless stove" (shape of bent clay pipe).
1682. J. J. Becher mentions inflammability of coal-gas in his "Concordantz."
1698. Thomas Savery's steam engine.
1710. Thomas Newcomen invents atmospheric steam engine (improved by Watt, 1765).
1711. J. J. Partels constructs an aspirating ventilator for mines.
1713. Nicolas Ganger publishes memoir on heating and invents ventilating fireplace of elliptical shape.
1714. G. D. Fahrenheit invents 212° mercury thermometer.
1716. Martin Triewald constructs hot water heating plant for greenhouse at Newcastle-on-Tyne.
1726. Stephen Hales experiments with "elastic inflammable air of coals."
1730. Réaumur invents 80° alcohol thermometer.
Terral's bellows for heaters (1729) applied to ventilation of House of Commons by Desaguliers.
- 1740-86. Hot air heating at Neues Palais, Potsdam.
1742. Anders Celsius invents Centigrade thermometer.
1743. Stephen Hales publishes "A Description of Ventilation" (London, 1743).
1745. Franklin's Pennsylvania Fireplace (revolving stove).
1750. Stephen Hales introduces artificial ventilation in prisons.
1752. William Cooke describes plan for steam-heating of greenhouses (Royal Society).
1757. Joseph Black discovers CO_2 .
1758. Richard Broeklesby introduces ridge ventilation in small (decentralized) military hospital units.
- 1758-86. Benjamin Franklin investigates air-currents and smokiness in chimneys (Phil. Tr., II).
1763. Montalembert invents inverted smoke-flue, with dampers.
1765. James Watt evolves modern steam engine (patents 1769-84).
James Watt and John Southern invent indicator (volume-pressure) diagram.
1766. Cavendish discovers hydrogen.
1769. Manger introduces hot air heating in New Palace at Potsdam.
1771. Priestley and Scheele isolate oxygen.
1772. Rutherford discovers nitrogen.
1775. Lavoisier discovers oxygen and the nature of gas interchange in the lungs.
1777. Bonnemain invents system of warm water heating, for greenhouses.
1779. William Murdoch invents gas burner with three jets (cockspur burner).
- 1780-85. Laplace shows that products of combustion and respiration are CO_2 and H_2O .
1783. Ami Argand invents concentric tube burner with intervening wick.
- 1783-4. J. P. Minckelaers introduces gas-lighting in Louvain.
1784. James Watt constructs steam radiator for his work room.
1785. James Watt patents device for smoke-abatement.
1791. John Hoyle patents improved method of steam-heating.
Lagrange and Hassenfratz discover tissue respiration.
1792. Molitor heats clinic at Mainz with hot air.
W. Strutt heats cotton factory (Belfer) and Derbyshire Hospital with hot air.
- 1792-8. William Murdoch illuminates factory with coal gas.
- 1792-1824. Porcelain hot-air stoves (coekle-ovens) in vogue.
1793. Joseph Green patents system of hot air heating.
1796. Count Rumford investigates and improves fireplaces.
1797. Curandau heats porcelain factory in Paris with hot air.
1799. Philippe Lebon illuminates lighthouse at Havre with coal gas.
1800. F. W. Herschel discovers ultrared rays in spectrum.

1801. J. W. Ritter discovers ultraviolet rays in spectrum.
 1801-8. Sir Humphry Davy invents carbon (electric) arc light.
 1807. William Murdoch starts gas-lighting plant at Manchester, England.
 1810. Chartered Gas Company of London authorized by Parliament.
 1812. Bonnemain introduces hot-water heating in St. Petersburg.
 1814. London lighted with gas-lamps (April 1).
 1815. Samuel Clegg invents regulator for municipal supply of coal gas.
 Catter invents smoke-consuming fireplace.
 1817. Turner heats hothouses with high-pressure steam.
 1818. Marquis de Chabannes applies Bonnemain's warm water heating to business plants in Burlington Arcade.
 1819. David Gordon patents compressed coal gas for piping to habitations.
 1820. Coal tar oils used in Holliday lamp.
 Leon Duvoir invents medium pressure hot-water heating.
 J. B. Neilson invents union jet or "fish-tail" (reinforced) gas-burner (fusion of two flames).
 1821. P. L. Meissner publishes treatise on hot-air heating (basic for central heating).
 Central heating by natural gas at Fredonia, N. Y.
 1823. Jacob Perkins patents system of steam-heating.
 1824. Sadi Carnot publishes *Reflections on the motor power of heat*.
 Thomas & Laurens introduce combined steam and hot water heating at Hopital Lariboisiere.
 1826. Sir Goldsworthy Guernsey invents oxyhydrogen lime light.
 1827. Thomas Drummond employs lime light in Ordnance Survey of Ireland (Drummond light).
 Péciot publishes treatise on lighting.
 1828. Paris Bourse heated by high-pressure steam.
 1829. Péciot publishes treatise on heating.
 1831. A. M. Perkins introduces high pressure hot-water heating.
 1834. Warm-water heating of greenhouse at Nymphenberg Park (Munich).
 1835. W. H. Fox Talbot invents incandescent light of finely divided lime.
 Pinakothek at Munich heated by hot air.
 1836. Thomas Tredgold publishes *Principles of Warming and Ventilation*.
 1837. Gustav Magnus proves that tissues take up oxygen and give off CO₂.
 1837. Gourney introduces crude form of steam radiators ("batteries").
 C. Hood publishes treatise on heating.
 Karl Friedrich Mohr states principle of conservation and transformation of energy.
 1838-58. Jobard (Brussels) investigates incandescence of electrified carbon and platinum wires *in vacuo*.
 1839. Karl Bischoff introduces first successful gas heater.
 1840. W. P. Grave invents vacuum lamp (incandescent platinum wire).
 1842. Robert Mayer states equivalence of mechanical and thermal energy.
 1843. J. B. L. Foucault uses graphite carbon pencil for arc lamps.
 George Godwin starts *The Builder*, London (periodical).
 1845. King devises plumbago rod electric light.
 1847. J. P. Joule determines mechanical equivalent of heat.
 Helmholtz publishes treatise on conservation of energy.
 James Young distills petroleum.
 1848. J. P. Gillard invents water-gas lamp with platinum gauze mantle.
 1849. James Thomson establishes absolute scale of temperature in thermometry.
Journal of Gas Lighting (London) started by T. G. Barlow.
 1850. Clausius publishes treatise on the motor power of heat (entropy).
 1851. Pettenkofer illuminates Munich railway station with wood gas.
 1852. Lord Kelvin states principle of irreversible dissipation of energy.
 1853. Sir Edward Frankland invents regenerative gas burner of Argand type.
 (Improved by W. R. Bowditch, 1854.)
 Petroleum used for lamp lighting.
 1854. Gen. Arthur Morin publishes *Etudes sur la ventilation*.
 1855. R. W. von Bunsen invents atmospheric (mixed air and gas) burner (Bunsen burner).
 1858. *Journal für Gasbeleuchtung*, Munich, founded by N. H. Schilling.
 1859. E. L. Drake bores for petroleum in Pa. Importation of German oil lamps.
 First American patent for lamp.
 M. G. Farmer (Newport, R. I.) first illuminates houses with platinum (electric) lamps.
 1860. Adolf Wolpert publishes treatise on heating and ventilation (2. ed. 1880).
 1862. Pettenkofer's CO₂ test as a measure of bad ventilation.
 1863. William Siemens proposes central gas heating for Birmingham.
 1865. Hinks introduces duplex burner for coal-oil lamps.
 1866-8. Pflüger shows that locus of respiratory changes is in the tissues.
 1867. William Siemens proposes central gas lighting at source (coal mines).
 1868. Wunderlich publishes treatise on temperature in disease (clinical thermometry).

1870. Beginnings of generalized central-heating in Germany. Meidinger (Carlsruhe) invents base-burning oven.
1871. German law regulating safe location of boilers.
- James Thomson devices volume-pressure (thermodynamic) diagram.
1873. Willard Gibbs devises volume-entropy and temperature-entropy (θ - ϕ) diagrams.
Willard Gibbs invents solid thermodynamic model (volume-pressure-temperature).
Jacquet constructs a burnished reflector fireplace.
Clerk Maxwell's treatise on electricity and magnetism (mathematical statement of Faraday's experimental findings).
Institute of Municipal and County Engineers (Great Britain) founded.
1875. Max Pettenkofer publishes monograph on ventilation of dwellings.
- 1875-78. Willard Gibbs publishes memoir on the equilibrium of heterogeneous substances (physical chemistry).
1876. Paul Jablockhoff invents parallel carbon-kaolin arc lamp (Jablockhoff candle).
1877. Jablockhoff's kaolin electric light.
Plumber and Sanitary Engineer, N. Y., founded (continued as *Sanitary Engineer* 1877-1882).
- 1877-78. Downes and Blunt demonstrate bactericidal effects of light (Royal Society).
1878. Bechem & Post introduce low pressure steam (0.3 atmospheres) in central heating plants.
Edison invents platinum wire incandescent electric light.
Edison and Lane Fox propound theory of Nernst lamp (rare oxides over platinum wire).
F. von Hefner-Alteneck invents differential carbon arc lamp.
G. Stumpf published *Der Rohrleger* (periodical). (Continued as *Gesundheits-Ingenieur*, 1880-1926.)
Adolf Wolpert invents radiating stove.
1879. Edison invents carbonized bamboo wire for electric lighting.
Friedrich Siemens invents inverted regenerative lamp for street lighting. (Faraday, 1819.)
Friedrich Siemens invents improved regenerative gas burner.
1880. Macfarlane Gray applies Gibbs' θ - ϕ diagram (1873) to engineering.
1881. Edison Electric Light Company (New York) organized.
Holly introduces central steam heating of habitations at Lockport.
Sanitary Engineer, London (periodical), founded.
1882. Clamond invents basket mantle (cone of calcined magnesia) for lamps.
Clamond invents inverted gas and air burner.
Friedrich Siemens invents regenerative reflector oven.
1883. J. T. F. Hermans states present view of faulty ventilation (humidity and overheating).
1884. Friedrich Siemens invents free flame heating system, with more complete combustion and maintenance of higher temperature.
1885. Arthur Kitson invents atmospheric (incandescent) burner for oil lamps.
Friedrich Siemens invents "regenerative" gas-stove (odorless gas combustion and heating of floor by reflection).
- 1885-7. Auer von Welsbach patents and improves incandescent mantle of rare oxides (Welsbach burner).
- 1885-10. Hermann Rietschel becomes professor of heating in Technical High School at Charlottenburg.
1886. Hermann Rietschel publishes monograph on heating and ventilation of schools.
1887. Brown-Séquard and d'Arsonval announce false theory of toxic organic impurities in respired air.
1890. City Hospital of Hamburg central heated on ancient Roman (hypocaust) principle.
1891. Walter Snow urges "recirculation" of factory air.
1892. Crampton & Co. (London) patent electric heater for dwellings (four times as expensive as steam heating).
1893. Hermann Rietschel publishes official formulary-atlas for heating and ventilating computations (2. ed. 1894).
Auer von Welsbach perfects incandescent mantle (1: 99 cerium and thorium oxides).
Finsen treats smallpox pustules by exclusion of ultraviolet light.
1894. American Society of Heating and Ventilating Engineers founded.
J. S. Billings published *Principles of Ventilation and Heating* (2. ed. 1893).
F. de Mare invents collodion incandescent mantle (artificial silk mantle).
Report of Billings, Mitchell and Bergey (bad effects of vitiated air not due to CO_2).
1895. W. K. Röntgen discovers X-rays.
Pinsea treats lupus by concentration of chemical (ultraviolet) light.
O. Knöfler patents ammonium sulphide mantle.

- 1895-1921. H. J. Klinger edits *Kalender für Heizung und Lüftung* (Berlin).
1896. First Congress of German Heating and Ventilation (Berlin).
 Rietschel starts Testing Institute for heating appliances
 at Charlottenburg (new buildings 1907).
1897. Leo Arons (Berlin) invents mercury vapor lamp (no red or orange rays).
1897. H. A. Kent invents inverted incandescent mantle with invisible gas-air flame.
 H. W. Nernst invents incandescent lamp of platinum wire covered by oxides of zirconium and yttrium.
- 1897-1919. Hermann Recknagel edits *Kalender für Gesundheitstechniker* (Munich).
1898. P. and S. Curie discover radium.
1899. Duddell & Marchant study behavior and shape of alternating current arc light.
1900. A. Walkhoff shows destructive effect of radium upon the tissues.
1901. Fritz Blau invents osmium incandescent lamp.
 Asehkina and Caspari show that radium checks growth of bacteria.
 Dantes and Bloeb treat lupus with radium.
 Temper and Pfützner construct central heating plant for Dresden.
1902. Peter Cooper Hewitt perfects quartz mercury vapor lamp.
1903. Just and Hanaman invent tungsten and molybdenum lamps.
 Rollier opens clinic at Leysin for treatment of surgical tuberculosis with ultraviolet light.
 Danysz shows selective effect of radium upon malignant tumors.
1904. Werner von Bolton isolates pure tantalum (Siemens' & Halske's tantalum lamp, 1904).
1905. Flügge and pupils show that bad effects of vitiated air are due, not to impurities, but to heat and humidity.
 German Electric Light Company introduces osram lamp (osmium and tungsten).
1906. Hans Kuzel uses colloids of tungsten, molybdenum, etc., for incandescent lamps.
1907. Calvert and Bastian employ copper wire in incandescent lamps.
 Benedict and Milner show that excess of CO_2 exerts no evil effects in a cool chamber.
1910. Rollier opens Ecole de soleil at Cergnat for treatment of tuberculosis with Alpine (ultraviolet) sunlight.
1911. Recknagel prepares exhibit of heating and ventilation (Dresden Hygienic Exposition).
1913. Sir Leonard Hill, Haldane and their pupils confirm Flügge's findings on effects of humid heat.
 New York State Commission on Ventilation instituted (with laboratory).
1914. Chicago Commission on Ventilation confirms Flügge's findings.
- 1914-1915. New York State Commission of Ventilation confirms Flügge's findings.
1915. Hermann Recknagel publishes treatise on heating and ventilation.
1919. Huldshinsky shows curative effect of sunlight or quartz (mercury vapor) lamp-light upon rickets.
1920. Recknagel's formulary for computations on warm-water (central) heating published.
1923. Report of New York State Commission on Ventilation (1913-23).
1926. Extensive use of Roentgen, radium, ultraviolet and other kinds of radiation in many diseases.

F. H. GARRISON



FACED NEW ALL AND MAIN STAIRWAY

ADDRESSES DELIVERED AT THE DINNER IN HONOR OF THE NEWLY ELECTED HONORARY FELLOWS

BOOKS AND THE DOCTOR

HARVEY W. CUSHING

Boston

We come here, ladies and gentlemen, on this auspicious occasion, so far as I am aware, to talk about books and a library, and what is more, about the doctors' book and the doctors' library. The history of our great community libraries containing medical books is an unusual and interesting one.

These great assemblages of books have usually begun with an individual of bookish tendencies who has gathered some people about him in a book and journal club. Books accumulate and there is no suitable place to put them. The public libraries are tried but they are poor care-takers for a strictly professional foundling, and so the doctors are thrown on their own resources, and this is a very good thing for the doctor. The profession cannot long play the cuckoo in the matter of its books. It must build its own nest, must care for its own books. A book conscience thereby developed serves as the best possible measure of the status of the profession. As the calorimeter tells the activity of the patient's metabolism, so may you determine the plus or minus activity of the profession anywhere by the character and condition of its community library. And no less well may you gauge by the same measure the quality of a medical school, of a hospital, of a laboratory, of the individual doctor himself.

There is one peculiar thing about books insufficiently emphasized. They are bibliophilic, one attracting another, for books don't quarrel—only their authors. House them properly and other books will instinctively come to roost, and given a good working library, rich in its books of reference, its usefulness depends upon the encouragement and convenience it offers to the reader and on the infectious enthusiasm and spirit of its working staff. The testy librarian of tradition, miserly of his treasures, near-sightedly buried in his latest acquisition, impatient of inter-

ruptions, is an extinct species, and if such persons ever really existed outside the pages of fiction it would be charitable to us to ascribe their traits to the absent-mindedness that a most exacting task is prone to engender.

You have doubtless heard how late one afternoon the college librarian started home with a friend, and finding that it was raining returned to the library for his umbrella. As he did not reappear he was sought for and found absently looking for the object under "U" in the card catalogue.

To inoculate a doctor with the library habit he must be caught young. You must set a trap for him so baited he will walk into it unawares. There is no use to counsel him to read. Books must be put in his way so that he will stumble over them and make his own discovery.

William James once told how as a child he discovered a huge book one rainy afternoon in the garret of his father's house. He read it with absorbed interest till called to his supper, then told his mother he had found a most wonderful book full of battles and killing of people. It was called "The Holly Bible."

It is someone's business in every medical school to teach laboratory methods to students, but no one's business to teach them how to use medical literature which will be infinitely more useful to them than experience with smoked paper and Ludwig's drum. Short talks on the use of such a library as yours might well be made obligatory sectional exercise for medical students. Such an exercise, I am aware, on the methods of looking up subjects in the great indices sometimes meets with discouragement, as when the student requests a copy of "Ibid." as being just the work he is looking for.

No, there is only one thing to do with the young man in these days of the movie and jazz and the flivver; place both books and cigarettes in his way and caution him to beware of them as dangerous. He will certainly take to one, perhaps to both. This may, after all, be the right track, to warn young people against books as a bad habit, or at least against book collecting for one may become enslaved and soon so enveloped by books that they are in the front hall and in the dining room till you never can find the volume you want and you are sure the wife or children must have taken them when they borrowed your paste pot.

This, I take it, is what happened to your New York Academy of Medicine and explains this meeting. You had become so swamped with books in your original quarters that the volumes could not be found when called for. In fact beware of books. Some biologist has stated that if nature could take her course unimpeded the world would become populated with elephants wallowing about knee-deep in a seething mass of mice. This man knew nothing about books. As a species they are imperishable. Against their multiplication nature has no chance whatsoever. The time will come when every tree has been felled for paper, every calf for leather and the few long-haired and ill-nourished people left in the world will be making card-indexes of the volumes which have filled every available cranny in which they can be stored.

Laws will have to be passed against their importation; only a quota of French, German, Italian and Polish (especially Polish) books will be admitted each year, for should you happen to leave a pair of foreign books alone on a shelf in the state known as their original wrappers, they breed with amazing rapidity. Then, too, they have their diseases and are a trouble like too many children—they have worms, they wear out their clothing, they break their backs, they dislocate their joints, they require the constant care of a bibliotherapist.

But there is no use telling you to beware of books when you have already burned your bridges. Books will like the looks of your new building and come in such swarms, you will be driven out and into a new building in another generation. A library which does not grow is a *corpus inanimum*—the better it is, the faster it grows.

We in Boston made the usual small beginning more than a century ago with the books of a doctors' club in the house of an individual doctor. Then they were moved to an apothecary shop, then to the medical school, thence to a public library, thence to a succession of supposed permanent homes. The first was the former dwelling of Dr. Samuel Greeley Howe (who happened to marry "The Battle Hymn of the Republic," which served to obscure Samuel in favor of Julia) thence to a larger home, then to a beautiful Academy building where now there are so many books there is scarce standing room for the librarian and his staff.

Fortunate as the older communities like Philadelphia, Boston and New York may be in their present magnificent collections, there are always more books to buy and one cannot afford to wait for donations. The more precious classics of medicine, the number of which is limited, grow more and more rare, more and more expensive, for the competition is great. New schools are being founded that know the value of books. It is rumored that Tulane is buying, also Rochester, Cleveland, Detroit, Pittsburgh and the new Duke University plans to have a great library for its medical department. So even a school of undergraduates may enter into competition with you for books.

At the Johns Hopkins Library, they have drawn plans for a building with a potential stack room of nigh half a million volumes and appointed a one-time New Yorker, whose name spells success in whatever he attempts, to fill another Chair as Professor of the History of Medicine. Such a post for such a man in such a place indicates progress in medical science, merely building on a knowledge of the past of which libraries are the storehouse. The tendency of our recent times has been to lavish gifts on our laboratories and neglect our libraries, but medicine needs both if we are to uphold our vaunted reputation of being a scholarly profession.

I bring to you, Mr. President, from the Boston Medical Library Association our greetings and not only our greetings but congratulations on the transfer of your precious collection of books to its new quarters. The degree of solidarity among our medical fellow kind in each and every community may be measured by the character of the library which it has gathered. From such a library as yours, as an appropriate and convenient center, will increasingly radiate a host of subsidiary activities relating to health, hygiene, and sanitation which are such important factors in community welfare.

THE COLLEGE OF PHYSICIANS OF PHILADELPHIA

GEORGE E. DE SCHWEINITZ
Philadelphia

It is a real privilege to be here tonight and to hold in happy anticipation an invitation to take part in the ceremonies of tomorrow which shall signalize a notable achievement in the fair field of medical endeavor.

It is an honor to represent the College of Physicians of Philadelphia, for I assume that this pleasant task and highly appreciated duty constitute my credentials, and to bring to you, Mr. President and Members of the Academy of Medicine of New York, the hearty felicitations of the Collegiate Body which I have named on the consummation of your labors and the fulfillment of your cherished desires.

The Academy of Medicine of New York and the College of Physicians of Philadelphia, separated in distance by about a hundred miles, are unseparated in their cooperative effort to maintain the dignity of literary intercourse and requirements, and to enhance the value of medical and surgical effort.

“Like mighty partners, equally they raise
Yet neither envious of the other’s praise.”

I have denominated membership in the College of Physicians as my credential, and hence it is not out of place, following a suggestion of your Director, to say a few words which shall serve to introduce the Philadelphia Institution to the New York Academy of Medicine, even though I know full well that we are acquainted, and that on many pleasant occasions representatives of our respective memberships have exchanged pulpits (let us hope to mutual satisfaction), and that therefore I come not altogether as a stranger, not merely as a colleague, but, quite happily, as a warm and admiring friend.

The erection of a College of Physicians in Philadelphia was in 1767, suggested to Thomas Penn by John Morgan, but his proposals were rejected and a charter was refused. Subsequently several physicians, who later became Fellows of the College, after their graduation from the School of Medicine of the University of Pennsylvania (then called the College of Philadelphia) went

to Edinburgh and London to extend their medical education, and, struck with the success and value of medical societies in those cities, on their return debated the need of similar efforts in the new country, and Samuel Powell Griffiths expressly states, writing in 1783, that an American College of Physicians constituted an urgent need. Similar ideas were recorded in letters which passed between the physicians to whom I have referred and friends they had made in England and Scotland. Therefore several forces were active in the foundation of the College in Philadelphia, and the Royal College of Physicians of London became its prototype.

Although instituted in 1786, when an election of officers took place, the first meeting after full organization did not occur until January 2, 1787, and this day, by common consent, is regarded as its official birthday, and in less than two months from today its 140th anniversary will be celebrated.

Those present at this first meeting, namely, John Redman, President; John Jones, Vice President; Gerardus Clarkson, Treasurer; James Hutchinson, Secretary; and William Shippen, Jr., Benjamin Rush, John Morgan and Adam Kuhn, Censors, signed the Constitution, and the device for the seal was adopted which reads "*Non sibi sed toti.*"

In the quaint language of this Constitution, it is stated that "the objects of this College are, to advance the Science of Medicine, and thereby to lessen Human Misery, by investigating the diseases and remedies which are peculiar to our Country, by observing the effects of different seasons, climates, and situations upon the human body, by recording the changes that are produced in diseases by the progress of Agriculture, Arts, Population, and Manners, by searching for Medicines in our Woods, Waters, and the bowels of the Earth, by enlarging our avenues to knowledge from the discoveries and publications of foreign countries; by appointing stated times for literary intercourse and communications, and by cultivating order and uniformity in the practice of Physick."

The Fellows of the College were selected from "persons of merit in the profession of medicine;" by direction "good moral conduct and decent deportment" became a *sine qua non* of eligibility.

One month after the College was founded, Benjamin Rush wrote "By assuming the name of a College, we shall first be able to introduce order and dignity into the practice of physic, by establishing incentives and rewards of character . . . our meetings will serve to correct or to improve our conduct. And if we are as chaste as we should be, in the admission of members, a fellowship in our College will become in time not only the sign of ability, but an introduction to business and reputation in physic."

Even as Benjamin of old settled his tribe in the fertile valley between Ephraim and Judah, so this Benjamin of a later day realizing, again to quote, that a "fellowship in the College would mean an introduction to business and reputation in physic," had faith that the area between the Schuylkill and the Delaware would prove to be "a fertile one," and his faith has been justified.

For almost a century and a half the Fellows of the College have followed the line of conduct laid down by the founders, and have striven to maintain a proper relation to the ethics of the profession, to assume a guardianship over the health, safety and morals of the community, and to lend their aid to medical effort, medical achievement, medical research and medical literary advancement.

True to the tradition of all physicians who approach their tasks with rightness of heart, force of character and straight thinking, the records of the Fellows in peace, war and pestilence are clean.

When the days from 1793-1798 were evil, and in Philadelphia yellow fever took its heavy toll of victims, they exhibited, as all physicians always have done in all emergencies, unselfish devotion to duty regardless of personal danger, even though their conferences were not always free from disagreement as to the etiology of this plague, which they disputed, as Hacket would say, with an acrimony of voice and gesture. The names of two of the Fellows of the College find place on "the illustrious head roll of medical martyrs."

But it is not of medical effort in war and disaster that I should speak, for we are content to know that physicians in all lands have not failed to serve their governments in times of dire distress, and serving with fine fidelity, have written noble chapters

into the war histories and sanitary records of their respective countries.

A prime object of a College of Physicians or an Academy of Medicine is to enlarge our avenues to knowledge from the discoveries and publications, not only of the countries in which they exist, but from those of foreign lands—hence the need of establishing Libraries. The one in the College of Physicians in Philadelphia began in 1788 by a donation of 24 volumes from John Morgan. Slowly at first, but in later years swiftly, it has developed, and today its bookstacks and shelves contain 149,739 bound volumes, 26,797 Theses and Dissertations, and 163,786 pamphlets, at present being sorted according to subjects preparatory to binding. Among these volumes are many rare and valuable books, and of incunabula we possess 371 Titles and 255 Volumes, of which 240 photostat copies have been made. In the Journal Room the current medical literature of the day in all modern languages is well displayed and of easy access, and at this time the total number of such periodical publications received is 1203.

The Library of the New York Academy of Medicine, like the one to which reference has been made, is also a splendid storehouse of the gathered thoughts and the scientific records of medical men. I extend to you congratulations from the College I have the honor to represent on this fine achievement. Once more we are, indeed, "mighty partners," each glad of the other's success, neither envious of the other's praise.

These libraries, and I do not forget those of established and mounting reputation in other cities of the country, constitute interpretations of our steadfast endeavor to elevate the standard of medical achievement and enhance the value of literary effort. They have gained and maintained their allotted order of precedence among the best of the great medical book collections of the world. Deeply impressed as I am, and as all of us are, by the importance of such achievements, I am equally impressed by the necessity of cooperation, the necessity of working for the profession to which we have the honor to belong, in "perfect sympathy and uncontending equity."

Membership in the New York Academy of Medicine, and in the College of Physicians of Philadelphia, constitutes a patent of nobility, and carries with it a compelling responsibility,—the

responsibility which resides in organized medical effort with relation to community service in the widest acceptance of that term. Of course I know how great the endeavors along these lines have been and are, but I know of no reason why they should not be greater, more effective, and more satisfactorily carried on, especially as they are concerned with proper publicity through the channels best equipped to reach the largest audience. I hope the day is not far distant when on some occasion there may be a combined meeting of the New York Academy of Medicine and the College of Physicians of Philadelphia, and the whole matter discussed and rearranged.

And now I crave permission to join with the members of the Academy of Medicine of New York in saluting your guests from afar, and in avowal of our debt to them and to the medical and scientific achievements of the countries they represent—a debt we gladly acknowledge, a debt we cheerfully own. I am sure there is no member of our fraternity here tonight who, when writing up the credit page of the ledger of his life, does not smile happily at many entries he is enabled to make because of stimulation and instruction he has received in the laboratories and clinics across the seas.

Once more I thank you, Mr. President and members of the New York Academy of Medicine, for the pleasure of being here tonight, and I express the hope that the *entente* which has existed between the Academy of New York and the College of Philadelphia may remain unbroken.

I wish for you and for yours, wish for all of us, continued success. If we are loyal in thought and action, steadfast in effort, united in purpose and true to our ideals, we may face the future with confidence, and when our work is ended, the Scribe will enter on the record, in good black, enduring ink: "They did not shame their day."

REMARKS

W. S. THAYER

Baltimore

'Tis interesting to reflect that when we meet tomorrow at the beautiful new building of the Academy, the point of reunion for all students of medicine in this great community, it will be about the Library that we gather. The Library—the book—is still the common point about which students collect today, as centuries ago readers met about the old tomes chained to their shelves.

In the dark ages of blind reverence for authority, the manuscript, the book, the great compilation gathered about the aphorisms of an old master whose word was as revealed, was the foundation of all knowledge. The old master generally had been a keen observer and a wise man; the scribe too often was his servile worshipper, spinning a web of more or less valuable discussion about the kernel of the annals of the seer. Man who has always been a slave to the word, bowed down before the book. The tyranny of words is the most dangerous of human powers.

But there were men who dared to look for themselves; who dared to seek and who found; who dared to knock and to whom it was opened. These men, who had burst the confining bonds of the tyranny of words, to whom the search for truth was above the worship of authority, consigned to the written page their observations, their experience, their perceptions, their deductions, their opinions, sometimes in cryptic phrase, sometimes openly. Sometimes, as Michael Servetus, they gave their lives in payment. First, the anatomists, and then, as Allbutt has so well pointed out, the humble surgeon in the days when "sacerdotal, scholastic and military convention" had excommunicated surgery and made that false and pernicious schism in medicine in its broader sense which exists to the present day. The anatomist and the surgeon led the way, in times when the physician was indulging in vain dialectic as to the arm from which one should bleed, or were entering on what Huchard calls "The antimonial war of a century." Precious milestones, these works, in the annals of medicine, preserved for us all in libraries such as yours.

The physiologist and the student of pathology in its full sense followed, and with the improvement of the art of printing, medical literature, no longer restricted to dissertations on the canons of the master, became a record of the experience, the achievements, the constataions, if one may use the word, the hypotheses of the observer and the experimenter.

The birth one might almost say, of the art of diagnosis of internal disease, dating from the time of Auenhrugger and Laennec, placed the physician on his own feet, and began to wean him from his servile worship of the assertion of another. On the other hand rapidly accumulating contributions to medical science and art, printed in an increasing number of books and periodicals in all countries and in all languages, rendered the library more and more necessary to student and practitioner. Medical literature was no longer the record of authority; it became the record of achievement. The contributions of the last fifty years with the birth of an art of therapy based on scientific foundations are recorded in a literature increasingly voluminous.

But in this old world there are still vestiges of virgin forest. From the prostrate trunks of stately trees has sprung, alas, a literature which is as "a pestilence that walketh in darkness"—"a destruction that wasteth by noonday."

Have you ever happened on river or lake, to meet with the birth of a generation of "May-flies"? You are gazing peacefully at a lovely sunset, and of a sudden, the air is full of flying things—light, thin, long, squirming, green, almost translucent bodies with large, transparent, spotted wings. They come in clouds. In a moment you are covered. They are in your eyes, your ears, your nose, crawling down your neck and up your sleeves. You rush for cover, and as you go you tread on a crackling mass, and slip on the slimy bodies crushed under your feet as they carpet the deck. Once within, you may open neither door nor window, through which light no longer comes. Without, everything is covered and hidden by layers an inch or more thick.

Ephemeridae, they are sluggish in the morning, shriveled and dead by another night, but in their lifetime they have shut the light from your eyes, and hidden all that you would see, while the slime from their bodies, crushed as you pass, tangles your feet and hinders your progress.

Even so from the trunks of the felled trees of the virgin forest has arisen a substance by courtesy or convention called "paper"—a crying insult to the paper of the past! From this burlesque on paper there has burst upon us a cloud of "literature," not only general but medical, which obscures the sky. As by a generation of May-flies, we are submerged by medical ephemeridae. Advertisements of every imaginable sort, periodicals, columns in the daily press, carefully "written down" for the intelligence of a child, books. Books written to record the experiments, studies or achievements of the author? Oh! no. Books written on time, at the request of a publisher—compilations, in great part, and too often of little value. For medical literature today, no longer the literature of authority, too rarely the literature of achievement, is largely the literature of the publisher.

Smothered and blinded by this plague of ephemeridae, 'tis to the library again that we turn. As the sailor sweeps the deck, so the devoted librarian sorts and classifies and catalogues or sweeps away and burns this incubus of literature, so that we may find more readily the jewels buried beneath the ephemeral cloud.

That this great and growing library should now at last have a home fully worthy its present excellence and its future promise is of happy augury for the profession and public of this city and of the country at large.

This year, the year of the opening of your new building, is a medical anniversary of some importance. 'Tis the centenary of the death of Laennec, and of the birth of the second, the great edition of his book in which is set forth for the first time the real basis of pulmonary diagnosis.

A charming figure he must have been. The little, spirited, spiritual man, the archetype of the Celt, with oval face, large, expressive eyes, long, humorous upper lip. Scholar and classicist, who at eleven had translated the first Georgic of Virgil into good French metre; poet, who at the same age was writing fables in no mean verse; lover of nature and of music; profound, devoted student with a deep reverence for those who had gone before; whose inaugural thesis was on the doctrine of Hippocrates whose works he had read and pondered in the original Greek. Anatomist who, at the very outset of his career, had described the subdeltoid bursa and the capsule of the liver. Pathologist, whose

description of peritonitis as a pathological and clinical entity, published in the earliest years of his medical life, is a classic; whose anatomical and clinical descriptions have never been surpassed. Inventor of the stethoscope. Author of "L'auscultation médiate" in which is set forth a method of clinical procedure which is a model for all time; which contains descriptions—in good part original—especially those of bronchiectasis and emphysema—of pathological changes in the lungs and of methods of clinical recognition of such changes which are the very basis of modern clinical medicine. Vigorous defender of his ideas, and spirited, sometimes bitter opponent of his contradictors. Brilliant, successful, wise practitioner and teacher; devout withal, and one of a group presented to the Pope, which was greeted by the memorable exclamation: "Medicus pius—res miranda!" ("A pious doctor; marvelous object!"). Dead at forty-four of that disease to which he had given so much of his life. Father of modern diagnosis.

Fancy for a moment that the angel Ithuriel, disturbed by the reports of the press and Sinclair Lewis's novels, were to dispatch Laennec to inspect the medical circles of New York, as some years ago he sent Baboue to Persepolis. Fancy the delight of the little master at the advances in our knowledge of disease, at that which bacteriological and serological studies have brought; at the applications of chemistry and physics to the medical sciences; at the possibilities of modern diagnosis; at the multitude of instruments of precision, the clinical thermometer, the ophthalmoscope, the laryngoscope, the use of the electric light in endoscopy in all its forms, the sphygmomanometer, the X-ray; at the growth of a therapy resting on a scientific basis; at the schools and libraries and hospitals such as you would show him today. But fancy for a moment his surprise, on entering a hospital ward—the little master in his swallow-tail and choker, his big stethoscope in its green leather case in his coat-tail pocket—fancy his surprise on entering the ward and finding himself face to face with a comely nurse with jaunty cap and bobbed hair, and plucked eyebrows, and slightly hectic cheeks, and pale nose, and curiously cyanotic lips, and shortish skirts; or on meeting, in the corridors, those visions of beauty with shorter skirts and *bobder* hair, whose very presence is a social service! Fancy what his feelings would be!

But no, rather let us refrain! There may be reporters in the room. I fear that with the Reverend Increase Mather, he might suspect that the devil, appearing as an angelical apparition, might lurk behind these alluring visions! He would have to learn, but he would learn in time, that they *are* "Angels of light" after all.

And then fancy his surprise at the language employed at the bedside—Laennec who always dictated his opinions and diagnoses to his students in Latin, "*pour des raisons faciles à sentir*," as he said. Latin! Gone in one short century! Latin—for so many hundred years the language of scholars. "What on earth" he would say "is the sense of wasting years in the acquisition of a few barbarous modern languages when in Latin all scholars may meet?" "That new word 'standardization' which rather offends my ear," he would reflect, "that new word 'standardization' seems to be a sort of semi-religious ideal of this strange new generation which is feverishly seeking the shorter way. But the one standard which has endured through more than fifty generations, Latin, the language of learning and of the church, this one standard they have thrown away. 'Tis passing strange!" But when some bright-eyed enthusiast told him of "Esperanto," he would understand. He would open his mouth, nod his head, tap his forehead and whisper to himself: "Ah mad!—all mad!"

And when he saw men looking at X-ray plates before they examined the chest, making pulmonary diagnoses, perhaps, from an X-ray plate—or blindly accepting the opinion expressed by the radiologist, without so much as seeing the plates, when he saw this, he would cry aloud: "But these are shadows that you are chasing! Listen, touch, smell, look! Look at your patient before you turn to shadows! From the shadow you may learn much, but would you interpret life and reality which are before you from shadows alone?"

He would marvel at the new therapy resting on scientific foundations. But when he, who was so careful and considerate of his patient saw the advertisements of our wholesale chemists, and the manner in which their products are used by some of our colleagues on the mere basis of the conscienceless and preposterous statements contained in this literature; when he saw the amazingly reckless manner, the levity, one might almost say, with

which poisonous substances of all sorts, notably mercurial and arsenical compounds, are introduced into the circulation of the patient, he might ask himself what had become of the careful methods of clinical and pathological control which he had helped to initiate. He might indeed ask himself if the indiscriminate bleeding of his own day were not perhaps less harmful and equally intelligent.

Fancy his satisfaction at the coöperation shown in the study of diagnostic and therapeutic problems in our better hospitals and clinics; but fancy his surprise and uneasiness at the exaggerated subdivision of work in some clinics and some institutions, and at the frank and open speculation on the supposed fortunes of their patients by some physicians and surgeons.

And then when he read "Arrowsmith" and talked with the misanthropic individuals who are always with us ready to gloat over the iniquities of this world, might he not well have some anxiety as to the future of medicine? But when he met the leaders of medicine in New York today, when he went out into the rural medical societies and associated with the country doctor; when he met and communed with such men as are in this hall tonight, he would surely realize that the doctors of today are, in the vast majority of instances, fine, high-minded fellows, trying to do their best, associating and working together far more intimately and far more harmoniously than in his day.

And when his visit was done and his report was due he would have made by the best founder in the city, a beautiful model of the new quarters of the Academy of Medicine, "composed of all metals, earths and stones—the most precious and the most vile." He would lay it at the feet of Ithuriel, and he would say: "Your Serene Highness," for he was a courtier, and even angels are susceptible to adulation, "I have visited New York. I have found men and women, physicians and laymen, much as they were in my own day; as credulous, as prejudiced, as suspicious, as covetous as we were. They have the same old faults, the same old passions, the same old prejudices. They live in a country which boasts much of its freedom, and sometimes they seem to me hardly so tolerant as we were a hundred years ago. But collectively they are responsible for this beautiful thing and all that it represents, infinitely more beautiful and beneficent than any-

thing that existed or could have existed—than anything we could have dreamed of in my day. Shall we break this lovely thing, because all that is in it is not gold and diamonds? Shall we condemn all this beauty and all this progress in the science and art of medicine, all this spirit of coöperation among physicians and surgeons because, after all, it is the work of men and women with all their human frailties. In your own words, ‘*Si tout n’est pas bien, tout est passable,*’ and so much more so than in my day. May it please your Highness, if I might be allowed to suggest such a thing, may I dare to hope that, in another century, your Serene Highness might consider the possibility of sending me back again? And may I be justified in expressing the hope that your Highness will assign me to The New York Academy of Medicine; and that if it be not too much trouble, your Highness might arrange to send George Stewart with me to preside at the dinner?”

OPENING EXERCISES AT THE NEW BUILDING

DEDICATORY PRAYER

REV. DR. HENRY SLOANE COFFIN

O God, who dwellest not in houses built by hands, but revealest Thyself in the lives of men and women who serve the world, hallow with Thy blessing this building reared for the fellowship of those who minister to the health of bodies and of minds. Let Thy blessing rest upon all who planned and all who labored to erect this edifice, and upon those who shall direct its use. Foster here both the science and art of physical well being. May those who meet within these walls help each other to understand the causes and cure of disease, to be skilled in safeguarding and increasing public health, and to aid mankind to attain greater vigor for their work and play.

Grant that this Academy of Medicine rich with the memories of physicians and surgeons honored and loved in their generations, may uphold the standards and traditions of a high calling, and inspire its members with open-mindedness to truth, diligence

in study, courage in the discharge of duty, reverence for those they serve, and unselfish devotion to their welfare. In the midst of this wealthy city, enable these servants of humanity to remain untainted by sordid ideals, and by their life and work, to assist in leavening the community with the spirit of the Son of man who came not to be ministered unto but to minister, and who set men free from ills of the flesh and spirit that they might share His own abundant life.

Amen.

THE SERVICE OF THE ACADEMY

SAMUEL A. BROWN

President, New York Academy of Medicine

In my contact with patients and friends, I find that the Academy of Medicine is not well understood. They say, "Oh, yes, the Academy! We presume it is connected with a medical school, or it is part of some hospital. We know that you have a library but you can't possibly need a big building for a library."

Therefore, I thought that this afternoon I would present to you some of the activities of the Academy, in order that the functions of the Academy might be better understood by many of our friends.

The Academy was organized in 1848 by a group of men who were leaders in the profession, who had in mind the betterment of the practitioner of medicine, to the end that he might render better service to the public. They devoted their energy to the advancement of medical education, to the scientific development of their members, and to all matters relating to public health.

As time went on they organized regular scientific meetings, which have been continued until the present time, and at these meetings the best minds of the country are requested and invited to present the results of their experience, so that the members of the Academy may be kept abreast with medical science.

Of course, it would not have been complete without a library. The library was started in the time of Dr. S. S. Purple, the presi-

dent, when the Academy was at 12 West Thirty-first Street. It has grown from a very small beginning, until today it is the third largest medical library in the world.

The privileges of the library and the facilities of the library are not limited to the members and fellows of the Academy. They are available to medical students, to students in sciences allied to medicine, and to the public. In fact, this library occupies a position in relation to medical literature similar to that which the Public Library occupies in relation to general literature.

More recently, there has been created a Bureau of Clinical Information. This Bureau now provides information about hospitals, clinics, and postgraduate courses of various types to physicians from all parts of the country. Hundreds of physicians now come to the Academy during the year from out of town and receive advice as to the type of refreshing courses and postgraduate education which they desire to undertake. The Bureau is also able to advise foreigners in regard to courses in this country, and to advise our medical men and students of the various postgraduate courses available in Europe, thereby saving them much time in making their contacts when they go abroad.

The Academy has also devoted much time to matters of public health. This activity was graciously referred to by the Mayor at the dinner last night.

In the early days of the Academy, during the decade of 1850-1860, the Academy took a most active interest in supporting the agitation for the organization of a Board of Health for the abatement of the evil of feeding cattle within the city limits, and other such matters. Early in this century, the Academy successfully supported a movement for the transfer of the State Quarantine Service in the Borough of New York to the Federal Government.

In 1911 the Academy organized a special committee on public health, hospitals, and budgets, and this committee has actively continued its interest in these matters as they affect the city. Through the influence of this committee, now entitled the Committee on Public Health Relations, the Academy has been successful in bringing about the abandonment of several dispensaries and other institutions no longer needed; it has been able to persuade members of institutions to change their policies in order to better

them; it has published several books and pamphlets which have had an important bearing on the hospital situation in New York.

The organization of the Dispensary Development Committee was a direct result of the Committee on Public Health Relations.

Although the Academy has not taken an active part in securing new legislation, it has frequently lent its advice and influence for the modification of many laws affecting the practice, holding itself somewhat aloof from the political aspects of the situation. This may or may not be a wise thing to do.

The building of the Academy has been a meeting place for the societies of the county and the state of New York and a score or more other societies, thus bringing under one roof nearly all of the medical societies and activities of the city, especially of the Borough of Manhattan, promoting a mutual understanding, and advancing the interests of the profession.

The Academy has provided offices for the Society of Widows and Orphans of Medical Men, the New York Physicians' Mutual Aid, and many other organizations.

The Academy has also rendered a service to the community and to the medical profession by its constant endeavor to maintain a proper standard of ethics among the members of the medical profession. Although ethics and professional courtesy are frequently misunderstood by the laity, their existence is primarily for the benefit of the patient.

I have often heard this building spoken of as a beautiful monument to the profession. Personally I like to think of it as a workshop, for in years to come it will be the output of this workshop which will be carefully criticized when the justification of this large investment is to be considered.

THE BUILDING OF THE ACADEMY

ARTHUR B. DUEL

Chairman of the Building Committee

There is no more striking human characteristic than the desire to own and maintain a home. The American has been possessed with this same desire in the same way as has existed in other civilizations. Man desires a home primarily for shelter for him-

self, his wife and his children. This is his primary desire, but relatively few appreciate the mental, moral and spiritual qualities that are so commonly developed in the home. This home instinct has been sadly impaired by the enormous growth of our urban interests, disrupted by the facility of modern communication and made increasingly difficult by the extravagance and congestion of our city life.

One hundred years ago in this country the home was practically the only meeting place for social intercourse, and there the members of the family heard discussed, by their elders, the various problems of the day—politics, religion, education and all matters pertaining to community life. It is therefore natural that groups of individuals are prompted to seek a home or meeting place in the present day, when homes are no longer large enough, except in rare instances, to permit free discussions and to provide facilities for social intercourse.

Eighty years ago a group of physicians living in New York City were strongly urged of the need of bringing together from time to time the leaders in the medical profession in the fields of practice, teaching and research for the purpose of taking counsel with each other; and for advancing the practice and art of medicine; and for the promotion of public health. The leader of this movement was Dr. John W. Francis, a dominant figure in those days, whose efforts were successful in bringing about the organization of the New York Academy of Medicine. The majority of the doctors who were interested in the formation of the Academy were active members of the Society for the Widows and Orphans of Medical Men, which organization still exists and has offices in the present building of the Academy.

The search for a home began immediately and then it could only serve the purpose of providing temporary housing for the first-born child, namely—the promotion of the art and practice of medicine by the holding of meetings and conferences. These meetings were held, first at the Convention Hall on Wooster Street, then at the Lyceum of Natural History, later at New York University and the last temporary quarters were at the College of Physicians and Surgeons.

The search for a permanent home continued and it was finally possible for the Fellows of the Academy and their friends to

secure what we would now consider an old-fashioned, high-stoop, brownstone home at 12 West 31st Street which was opened in 1875.

The desire of the Fellows to render more service to the profession soon prompted them to organize a library and to subscribe to the current medical journals so that the Fellows might keep abreast of the progress of medical science. The most active Fellow in this movement was Dr. Samuel Smith Purple who made the first contribution to the library as soon as the new home of the Academy was opened on thirty-first street. This library was the second child of the Academy whose growth and development have been prodigious.

The Academy increased in numbers. The meetings becoming steadily larger there was an urgent need for a larger room than the ordinary parlor of this old-fashioned building and, as a result of the activity and generosity of Dr. Abram Du Bois, a meeting room was built in the rear of the building which was named "Du Bois Hall."

Continued growth of the library and the increasing numbers of the Fellows made it imperative to have larger and more commodious quarters. As a result of continued effort, during 1887-88, a new building was constructed at 17 West 43rd Street which, at the time, seemed to fulfil all the immediate and future needs of the Academy. Its spacious meeting hall was made possible by a large gift from Mrs. Seline B. Hosack in memory of her husband, Dr. Alexander Eddy Hosack, and after whom the hall was named. In appreciation of the memory of Dr. Abram Du Bois the next largest meeting room in the new building at 17 West 43rd Street was designated "Du Bois Hall."

This building proved commodious enough to permit two more children to develop lives of activity and usefulness within its walls—the Public Health Committee and the Bureau of Clinical Information. The second child, however, continued to grow so that the book stack was soon found to be too small for future development of the library. Not only had the stack become overcrowded but also the reading rooms, for it was the only public medical library in the City of New York. The organization of the Kings County Medical Library took place some years later.

As early as 1909 the Library Committee called attention to the

urgent need for more room for books and more room for readers. During the year 1909 a scheme was developed for the construction of a new building at Seventh Avenue and Fifty-eighth Street and an earnest effort was made to secure additional funds. For the construction of the building the Academy Extension Fund was created and, during the next few years, this increased to over \$130,000 in 1911. However, this was insufficient to make it possible to consider seriously the construction of a new building. In 1911 plans were drawn for the alteration and additions to the existing building at 43rd Street. A lot was purchased at 15 West 43rd Street and an additional lot, which was subsequently sold, was purchased in the rear on Forty-fourth Street.

It soon became evident that it was extremely difficult to remodel the building on account of the fact that the stack was a fixed unit and could not be enlarged without practically a complete reconstruction. As funds in sufficient amount were not available, the plan was again postponed.

The continued growth of the library and the constant recommendations of the Library Committee for increased space urged the trustees to reconsider the possibilities of making additions to the building at Forty-third Street, and serious consideration was given to this plan in 1917. However the matter had to be left on the table on account of the war. Nearly half of the Fellows were engaged in some form of war service. The matter was taken up again in 1919 and working drawings were prepared for additions and alterations to the old building. The Fellows were never fully satisfied with this proposal as it did not permit sufficient room for later expansion; so postponement again was the order of the day.

At this time Dr. Bryson Delavan, with a clear vision of our needs, presented a plan for an ideal structure which stimulated great enthusiasm and which, I believe, was the real inspiration for this larger and better Academy.

In 1921, the picture was entirely changed when Dr. Henry S. Pritchett, President of the Carnegie Foundation and the then Acting-President of the Carnegie Corporation, saw the need of a fine fire-proof building for our priceless library, recognized the value of the services rendered by the Academy to the medical profession and thence to the public, and the possibilities of its

increasing usefulness and service. Under his kindly auspices conferences were held with the Carnegie Corporation and the Rockefeller Foundation and, in 1922, the Carnegie Corporation voted a grant of \$1,000,000 for the purpose of constructing a new building for the Academy.

During the summer of 1922 sketches were made of building sites on East Fifty-seventh and Fifty-eighth Streets and also for Sixtieth Street and Park Avenue, and it was during the spring of 1923 that the Academy engaged in an active campaign for funds for a new site and increased endowment. This effort resulted in \$206,161.64 being subscribed by 1,313 Fellows of the Academy. In addition, various friends of the Fellows contributed \$324,922.78. Of this latter sum there was included a gift of \$100,000 from Mr. George F. Baker, \$50,000 from Mr. James B. Ford, \$50,000 from Mr. Edward S. Harkness and \$50,000 from Mrs. Helen Hartley Jenkins.

The trustees in this year purchased a lot at the corner of Sixtieth Street and Park Avenue for which the sum of \$754,000 was paid and preliminary drawings were made for a building on this site, the plans for which were matured during the summer of 1923. The plans called for a building which would have cost \$2,225,000 and the expense would have been large, due to the fact that, on a lot 100' by 120', it was not even practicable to build the stack anywhere except within the main building.

It should be emphasized that the limitations of growth forced the Academy to move from 31st Street and the limitations of the growth of the stack forced the Academy to move from 43rd Street, and although the stack proposed at Sixtieth Street was far larger than the immediate needs of the Academy, yet it was a fixed unit and did not permit of any future expansion.

An attempt, however, was made to see what type of building could be constructed for a million dollars and it was then thought that, with that sum of money, a building could be erected which would be only a little larger than the existing building at Forty-third Street. After this attempt had been made it was decided by the Academy that a larger building would have to be constructed on a larger lot and that elasticity must be provided for the expansion of the stack which already was bulging with volumes—a medical library second only to the Surgeon General's

Library in Washington—and for future growth of the Academy's other activities. The Academy accordingly determined to sell the lot at Sixtieth Street, which was sold in 1924 for a million dollars, and the present site was purchased in the same year for \$225,000, which was subsequently added to by the purchase of a lot adjoining on East 103rd Street for \$17,500. The selection of a site was not easy and it will not be necessary to consider any detail of the various considerations of sites that were made during the winter of 1924. It suffices to say that over one hundred sites were considered, many of which were inspected by the trustees, and with the exception of several small-sized, undesirable lots, none were available for a price of less than half a million dollars but the one selected for the present site. During the summer of 1924 the architects, York and Sawyer, prepared a series of schemes. The trustees determined upon the present plan and building operations were undertaken in the spring of 1925. The corner-stone of the present building was laid on October 30, 1925, and today the building is completed.

It is now seventeen years since the first discussions were undertaken which have led to the culmination of our ardent desire to find a home which could be permanent and satisfactory for the needs of our family. The opportunity is offered to inspect the building, which has been designed primarily for utility, but with the same desire that exists in every happy family, to preserve its mementos and treasures, to embellish the home insofar as funds will permit, and to have it useful, simple, dignified and beautiful. We feel that this in a large measure has been accomplished. With full realization of the reasons why the Academy was forced to leave Thirty-first and Forty-third Streets, the building has been so constructed that the stack is a separate unit, which may be increased not only upward but also to the side, if future needs require it. The main building is also so constructed as to permit the addition of a number of stories. The auditorium extension permits the addition of several stories above it. Who can visualize the future? We have not tried to visualize what the Academy may be or what its needs may be fifty years from now, but we have visualized insofar as is possible and have produced a building which permits of expansion for every possible need that may eventuate.

The construction of this beautiful building could not have been possible had it not been for the enthusiasm and vision of Dr. Henry S. Pritchett: nor could it have been completed without the enthusiasm of Dr. Pritchett's successor as President of the Carnegie Corporation, Mr. Frederick P. Keppel, who had also been convinced of the usefulness of this growing institution and, as a result, an additional gift of \$550,000, making a total of \$1,550,000, was contributed by the Carnegie Corporation. Nor would it have been possible to plan and develop the additional educational facilities of the Academy, included in the extending activities of the Library, the Bureau of Clinical Information and the Committee on Public Health Relations, without the enthusiastic support of the Rockefeller Foundation which has promised the sum of \$62,500 annually and, with the capitalization of that sum in the near future, of \$152,000—and we here record again our everlasting gratitude to Dr. George E. Vincent and Mr. Edwin R. Embree, of the Rockefeller Foundation, for the interest they have taken in our behalf.

To the members of the Library Committee who served since 1909 is due no small measure of praise for their constant desire to find fire-proof, permanent and commodious quarters for the library. And to the Board of Trustees and members of the Academy whose interest and patience during this long and trying period have been a striking example of service to a noble cause. I record also my gratitude and appreciation of the earnest attention and interest given by my colleagues on the Building Committee. Finally, I am convinced that no such building combining such rare qualities of usefulness and beauty, could have been produced without the painstaking devotion to detail and careful study of our every need which has been given to it by our Director, Dr. Linsly R. Williams. To him perhaps more than to all others the credit of the working efficiency of this building should be given. Through his discriminating effort in coöperating with the service of Messrs. York and Sawyer and their illustrious partner, Mr. Louis Ayres, who has carried the brunt of the work and whose genius has produced this monumental, beautiful, soul-satisfying edifice, no measure of praise could be too great. The construction of the building, its detail and its beauty, are largely due to him, but great praise is due to Messrs.

Otto and Robert J. Eidlitz who have so successfully constructed the building under his direction. The furnishings and decorations have been the result of a combination of the artistic ability and skill of Mr. Louis Ayres and Mr. Barnet Phillips. During this process of construction there has been no rift in the lute—all have worked together with their shoulders to the wheel for the production of a thing of beauty and a joy forever.

It is with mingled feelings of pride and pleasure that we, of the Building Committee, turn over today to the use of the members of the Academy of Medicine, and to the public, the result of our most earnest endeavor.

ELECTION OF HONORARY FELLOWS

CITATIONS

EDWARD WILLIAM ARCHIBALD—Professor of Surgery, McGill University.

Eminent writer and skilful operator. A surgeon imbued with the pioneer spirit of discovery in the realm of thoracic surgery. Stimulating teacher, cultured gentleman and friendly scholar.

HARVEY W. CUSHING—Surgeon-in-Chief, Peter Bent Brigham Hospital.

Fertile contributor in the field of research; eminent writer; skilful operator in a hazardous and relatively uncharted region; stimulator of youth to high surgical ideals.

GEORGE E. DE SCHWEINITZ—Professor of Ophthalmology, University of Pennsylvania.

Prolific and forceful writer in his chosen field; successful as a clinician and practitioner, which has brought him a well-deserved international reputation; widely recognized and appreciated for his scholarly learning and charm of address, whose combined qualities have forwarded the teaching and practice of ophthalmology in this country.

THEOBALD SMITH—Director Department of Animal Pathology, Rockefeller Institute.

Profound student of pathology and bacteriology, particularly in the field of diseases of domestic animals. His contributions to our knowledge of bovine tuberculosis, cattle fever and swine cholera have been epoch-making. His sound judgment and rare ability have placed animal pathology upon a sound foundation and have brought him a well-earned international reputation.

WILLIAM SYDNEY THAYER—Professor Emeritus of Medicine, Johns Hopkins University.

Indefatigable worker, profound scholar in many fields. Clinician, historian and teacher; wise counselor and friend to student and patient; recognized both here and abroad for his important contributions to clinical medicine.

JOHN M. T. FINNEY—Professor of Clinical Surgery, Johns Hopkins University.

Outstanding in the profession as a teacher, writer, operator and originator of surgical methods; tactful and successful director of the enormous surgical personnel in the A. E. F.; a Christian gentleman endeared to all with whom he has come in contact.

ROBERT BARANY—Professor of Otology, Rhinology and Laryngology, Upsala University.

Distinguished Viennese otologist; renowned for his original research on the function of the otic labyrinth and the cerebellum, in their relation to the static sense; preeminently skillful in the surgery of the ear and brain complications of otitic origin.

CHEVALIER JACKSON—Professor of Laryngology, Jefferson Medical College and Professor of Esophagoscopy and Bronchoscopy, University of Pennsylvania.

Eminent laryngologist; indefatigable investigator and worker whose brilliant efforts have brought invaluable contributions to his field of medicine. His genius has made him internationally honored amongst his confreres and beloved by a host of grateful patients whose lives have been saved by his great skill.

VITTORIO PUTTI—Professor of Orthopedies and Medical Surgery. Istituto Rizzoli.

Skilful as a surgeon and appreciated for his humanitarian care of patients. His researches and his original work in the realm of orthopedy and his practical application of new methods have astounded the entire medical profession and brought to him the renown which he well deserves.

MARIN THEODORE TUFFIER—Physician, Retired.

A pioneer in the domain of surgery, notably thoracic surgery; eminent teacher; one who has done much to cement a cordial feeling between the representatives of the profession in France and America.

JOSEF JADASSOHN—Professor Dermatology and Syphilology, University of Breslau.

Favorite and most gifted pupil of Neisser and eventually his successor. Teacher of many outstanding dermatologists. There is no branch of his specialty in which he has not written an authoritative word. Unquestionably the leader in the field of dermatology.

SIR CHARLES SHERRINGTON—Waynflete Professor of Physiology, Oxford.

Fellow and past president of the Royal Society of London; honored and decorated at home and abroad for distinguished investigations in the field of physiology, and known throughout the civilized world for weighty contributions to the knowledge of the functions of the nervous system.

HENRY HEAD—Physician, Retired.

His researches have illuminated all branches of neurological medicine. To his profound and patient investigation we owe almost all of the knowledge of the sensory paths in the nervous system, and but lately he has notably aided our comprehension of the mechanism, structural and psychical, of speech.

JOHN JACOB ABEL—Professor of Pharmacology, Johns Hopkins University.

Chemist of profound ability; the discoverer of epinephrin in the adrenal glands; the leader of American pharmacology; renowned throughout the world and beloved by all who know him.

FRIEDRICH VON MÜLLER—Professor and Director of Medical Clinic of Munich.

Careful investigator in varied fields of clinical medicine; vigorous and forceful teacher whose clinical knowledge and skill have placed him in the forefront of all teachers of medicine; whose reputation has brought to him students from many lands to whom he has become endeared as a benefactor.

GEORGE FERNAND VIDAL—Professor of Medical Faculty, Hospital Cochin.

Eminent clinician and scientific investigator to whose researches on the diagnosis of typhoid fever and the function of the internal secretions the medical profession of the world owes a lasting debt of gratitude.

SIR GEORGE NEWMAN—Chief Medical Officer, Ministry of Health, London.

Foremost in the field of preventive medicine, promulgator of many reforms for protecting the health of school children; wise health administrator; eminent scholar whose prolific contributions in the field of preventive medicine have entitled him to recognition as the world's most prominent health official.

FRIEDRICH NEUFELD—Director Prussian Institute of Infectious Disease.

Follower of the illustrious Robert Koch and director of the laboratory for infectious diseases in Berlin, whose contributions to the field of immunology have given him an eminent place among bacteriologists of the world.

CARLOS CHAGAS—Director Oswaldo Cruz Institute.

Eminent pathologist whose studies in tropical medicine have contributed to the eradication of many diseases in the southern continent of America.

CHARLES JAMES MARTIN—Director of Lister Institute, London.

Physiologist and experimental pathologist; prolific writer whose contributions in the fields of physiology, biology and pathology have advanced the sciences to a higher plane. Recognized particularly in Britain and abroad for his investigations into anti-typhoid inoculations and the plague.

FRANK BILLINGS—Skilful as a clinician and appreciated for his humanitarian care of patients. His early researches in auto-infection awakened the medical profession to a new outlook to clinical medicine. Teacher, writer and promulgator of many medical administration reforms entitle him to the universal respect of his colleagues.

GEORGE DOCK—Physician to Los Angeles General Hospital. Clinician and teacher who for years inspired large numbers of students in medicine, earned a recognition of many followers. Among the first of the earlier investigators in the field of medical chemistry, stimulated scores of others to pursue researches in this field.

ABSTRACTS OF PAPERS PRESENTED AT SECTION MEETINGS

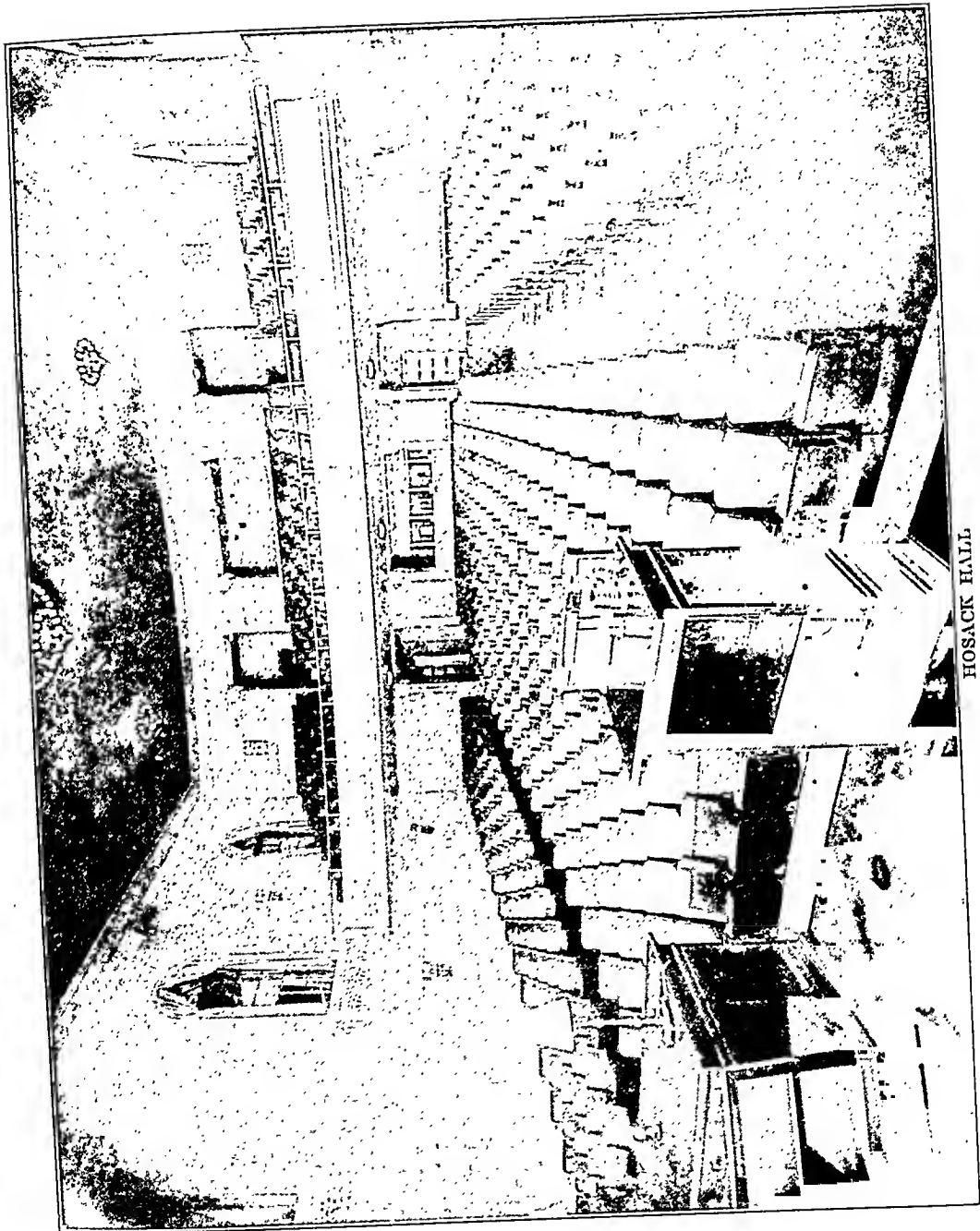
Section of Ophthalmology, November 15, 1926

PROTECTING THE EYE BY REFLECTING GLASSES

JOSEPH IMRE

Hungary

The author presented a most interesting paper of an original character. He classified protecting glasses into three parts. 1. The ordinary colored glass. 2. Those best for ultraviolet ray. 3. Those that best protect against the infra red ray. He described in detail a new kind of glass which incorporates in a substance, platinum, gold or silver. He presented various types of these glasses in various shades. The principle of these glasses, as the title explains, is by the principle of reflection, not absorption. To those interested in the subject, Dr. Imre's paper will be published in full in the *Archives of Ophthalmology*.



HOSACK HALL

FOREIGN BODIES IN THE INTESTINE

LOUIS CARP

The literature of foreign bodies in the intestine is replete with interesting and unusual cases. Ingested foreign bodies, varying widely in number, size, and character, may travel through the intestine, a distensible tube of comparatively small diameter, causing repeated mechanical insults to the intestinal wall without producing symptoms or permanent tissue damage. The pathological physiology and the mechanical factors to explain these phenomena will be briefly considered later.

From 1915 to 1926 there have been admitted to the Presbyterian Hospital fifty-four cases of proven foreign body in the intestine. Many different types of foreign body were encountered and most of them were evacuated without untoward symptoms. From an analysis of these cases the following summary may be given:

1. The foreign bodies were swallowed accidentally or by those who knew no better.
2. The largest number (72 per cent.) occurred among babies and children under ten years of age.
3. The cases were about equally divided between the sexes.
4. Dull objects were slightly preponderant.
5. Among sharp objects, pins were preponderant.
6. Most of the foreign bodies (85 per cent.) were passed.
7. Of the sharp foreign bodies only two (15 per cent.) perforated the gut.
8. The minority of the cases that pass foreign bodies have symptoms or signs.
9. It takes a sharp foreign body a little longer to pass than a dull foreign body.

The tonic, peristaltic, and rhythmic segmental contractions of the intestine tend to overcome the anatomical bars to the progress of a foreign body. They are the duodenum, ileocecal region, lumen of the appendix, junction of cecum and ascending colon, and the flexures and haustrae of the large intestine, including the rectal ampulla and the crypts of Morgagni.

The presence of a foreign body in the intestine may be due to migration from a neighboring organ, cavity or extremity, to accidental or deliberate ingestion, or to introduction through the anus into the rectum. Deliberated ingestion may result from an act of insanity, a dare, a habit or medicinal therapy. Accidental swallowing of foreign bodies is by far the most common. This occurs in careless and rapid eating or if a foreign body is placed in the mouth temporarily it may be swallowed through absent-mindedness or a sudden inspiratory effort.

Although almost any type of foreign body may gain access to the intestine, those most frequently found are metal, bone, fruit pits, glass, hair, wood and cloth. Deliberate ingestion, usually accomplished with less choking and pain than accidental ingestion, accounts for the remarkable size of some of these bodies.

What happens to the foreign body in the intestinal lumen and the reaction that may be produced in the intestinal wall constitute a most important aspect of this entire subject. Many are recovered in the same condition as before ingestion, but the intestinal juices may cause a metal object to break in two; or foreign bodies may be surrounded by some natural protective coat consisting of mucous, unabsorbed food or feces. Glass is usually rounded off by the digestive juices.

Although nature's protection facilitates the passage of most foreign bodies, symptoms frequently develop from obstruction, traumatism to or perforation of an organ. Thus we may find a peritonitis, peritoneal abscess, or fistulous communication between intestine and intestine, or between intestine and some other organ, such as the bladder. Other foreign bodies that are thin and sharp may perforate the gut, producing few or no symptoms, and travel through the peritoneal cavity or along muscle planes, or into a large blood-vessel. Such a procedure usually takes a long time. Many cases are operated presumably for appendicitis, in which a foreign body in or near the appendix was found to be the real etiological factor.

We have confirmed experimentally some of the observations made by Exner in 1902. The intestinal mucosa reacts to a light prick or stroke by the formation of a temporary area of anemia at the point of contact followed by a retraction of the mucosa, which persists for from five to fifteen minutes. In a large series

of experiments Exner further found that pointed foreign bodies are passed with heads isoperistaltic in a ratio of 7 to 3 that are passed with points isoperistaltic. This means that the intestine has a tendency to pass pointed foreign bodies blunt end forward.

Most foreign bodies in passing through the intestine produce no symptoms. When symptoms occur the diagnosis must be made on a careful history and a physical examination followed by the various laboratory aids, especially the X-ray. Such symptoms may be summarized as follows:

1. A mild cramp when they pass through the intestine naturally.

2. A cramp or pain in one spot when they pass through slowly.

3. Diarrhea and mucous or blood in the stool from irritation of the intestinal mucosa.

4. Intestinal obstruction.

5. Pain, tenderness and constitutional symptoms from inflammation and pressure necrosis.

6. Perforation.

Treatment. The prophylactic treatment is obvious; to eat carefully and to avoid placing foreign bodies in the mouth. The immediate course to be pursued following the ingestion of a foreign body is non-operative and expectant. The size and the nature of the foreign body, the condition of the intestine itself, and the possibility of the localization of the body will decide the wisdom of a subsequent radical procedure. The fear and the actual danger of the potential harm from the foreign body are never to be discounted. The unexpected may occur at any time from an apparently innocent foreign body. Close observation and immediate operative therapy when the symptoms so warrant are of paramount importance. On the other hand, we have shown by statistics and by experimental work that there is a natural tendency for the spontaneous passage of foreign bodies without untoward symptoms. To help nature, two factors are essential: the prevention of intestinal hypermotility, and the ingestion of such material as might aid in the formation of a protective coat around the foreign body. The idea of hastening the exit of a foreign body by the use of a cathartic is, I think, a mistake. Powerful intestinal contractions diminish the calibre of the in-

testinal lumen and may prevent rather than enhance progress. Further, a powerful contraction may drive the foreign body into or through the intestinal wall. Bran, agar-agar, wisps of cotton, pulataceous and stodgy food leaving a residue, such as oatmeal, vegetables, figs, raisins, et cetera, with the addition of a lubricant such as mineral oil, would help to surround the foreign body with a protective coat. When present in the large intestine longer than expected, barium or oil enemata may be used. If symptoms are produced when a foreign body gets to the rectum it is better to remove it with the finger or proctoscope. Ambulatory treatment is not contraindicated, although rest is to be desired.

CONCLUSIONS

I. Most foreign bodies of the intestine are ingested accidentally and in the majority of cases are evacuated spontaneously regardless of their size, shape, material and number.

II. Trauma from intestinal foreign bodies is guarded against by the protective mechanism of the intestinal wall which produces concavities with muscular boundaries on the mucosal aspect at the points of contact (Exner). This causes an increase in diameter of the intestinal lumen which facilitates propulsion forward of the foreign body by peristalsis and movement of intestinal contents.

III. Foreign bodies, pointed at one end, have a tendency to pass through the intestine with point antiperistaltic and to be evacuated blunt end forward. In this position the point is less likely to impede the progress of the foreign body through the intestinal canal and consequently foreign bodies with blunt end forward will be evacuated more quickly than those with point forward.

IV. A foreign body may travel from the intestine into another organ or into the peritoneal cavity and from there into muscle planes, with little or no symptoms. When late symptoms occur they are referable to the other organ or tissue involved.

V. Conservative treatment of intestinal foreign bodies is indicated in the large majority of cases as shown by statistics and experimental work. Careful observation, rest, and food or any substance leaving a large intestinal residue may help the successful passage of a foreign body. Cathartics are interdicted.

VI. Obstruction or acute perforation of the intestine or impaction of a foreign body in its wall demands operative therapy.

CHILLS IN ACUTE APPENDICITIS

RALPH COLP

The incidence and significance of chills in acute appendicitis are still obscure. In a series of 2,841 cases of acute appendicitis admitted to the wards of the Mt. Sinai Hospital, New York, 6.8 per cent. presented this symptom before operation. The degree and extent of the gross pathology present at the time of operation seemed to have little influence, or to bear any relationship to the occurrence of chills. Seventy per cent. of all rigors occurred within the first twenty-four hours. Cases presenting a chill later seemed associated with abscess formation, or the onset of a general peritonitis.

The combined mortality of cases with chills was 6 per cent., the date rate of those without was 5.1 per cent. In cases of gangrenous appendicitis with chills, the mortality apparently increased from 2.6 per cent. to 9 per cent. The cause of death in four of these six cases was attributable to pylephlebitis.

In 181 in which a single chill was recorded, seven died, two from pylephlebitis, a mortality of 3.7 per cent., which was no higher than that for all cases without chill. In eleven cases in which chills were multiple before operation, five died from pylephlebitis. Pylephlebitis in patients with multiple chills is almost a foregone conclusion, and certainly in those cases a ligation or resection of the ileocolic vein should be done before the actual appendicectomy.

Post-operative chills, when none have been noted before, are extremely rare; it was noted in three cases, two of which developed a fatal suppurative pylephlebitis.

*Combined Meeting of the Section of Neurology and Psychiatry,
and the New York Neurological Society, December 7, 1926*

HIGH CERVICAL LESIONS IN THE GUISE OF COM- BINED SYSTEM DISEASE

E. D. FRIEDMAN

The diagnosis of a level lesion in the cord seldom offers serious difficulties, although we may not always be certain of the nature of the pathological process which produces the level signs. We have had occasion, however, to observe two cases of high cervical cord lesion, in both of which the early signs pointed to combined system disease. It was only later in the course of their development that the evidences suggestive of a level lesion became manifest.

The first patient was a fourteen-year-old schoolboy who complained first of increasing weakness of the lower limbs. Soon afterward the upper extremities also showed loss of power. The patient noted shortness of breath and cardiac palpitation. There was incontinence of urine at times. Priapism occurred at intervals. He was admitted to Mt. Sinai Hospital in July, 1920. He presented labored breathing, tilting of the head with the chin directed to the left, nystagmus in the horizontal plane, motor weakness, more marked on the left, disturbances in joint mobility and vibratory sense in all four extremities, astereognosis in both hands, ataxia with tabetic athetosis in the hands, general exaggeration of the deep reflexes, diminution of lower abdominals, bilateral Babinski, spastic-ataxic gait, a positive Romberg sign and cerebellar phenomena, more marked on the left.

The general medical status showed no abnormalities. On one occasion sugar was found in the urine. Spinal fluid revealed no abnormal findings. Blood Wassermann proved negative.

The case was considered a cross between the Friedreich and Marie forms of ataxia.

He was discharged from Mt. Sinai Hospital on August 20, 1920. About four months later, he was admitted to Montefiore Hospital with the same complaints, in an aggravated form, however. The pyramidal tract signs had become more pronounced.

He now exhibited cross-legged progression. In addition to the disturbances in posterior-column sensation and the cerebellar manifestations, he now presented an area of hyperaesthesia in the distribution of the upper cervical segments and tenderness over the upper cervical spine. Below this hyperaesthetic zone, there were mild disturbances in pain and temperature sense. He rapidly developed the signs of a transverse lesion of the upper cervical cord and succumbed.

The autopsy findings were as follows: In the region of the foramen magnum, the upper cervical cord was found compressed by a mass springing from the odontoid process. This was composed of dense fibrous tissue in which was imbedded a bony nodule (osteofibroma).

The second patient was a fifty-five year old watchman who was admitted to Bellevue Hospital in July, 1924. For seven months prior to his admission, he complained of sharp pains in both shoulders radiating down the left arm and even into the left lower extremity. Four months later, he noted a similar pain in the right arm. He soon found that he was unable to execute finer movements with either hand. Walking became increasingly difficult and there was some hesitancy in voiding urine. He also noticed a sharp pain in the left side of the neck radiating upward.

Physical examination revealed moderate emphysema and mild athero-sclerosis. The neurological examination showed weakness of the upper extremities, more pronounced in the left, and paresis of both lower limbs. There seemed to be no disturbances in superficial sensation, but joint mobility and vibratory sense were impaired from the shoulders down. There was astereognosis in both hands with tabetic athetosis and ataxia. Gait was spastic-ataxic. There was a positive Romberg sign. Abdominals were diminished. Deep reflexes were exaggerated. A right Hoffman and bilateral Babinski sign were present.

The chief symptoms were those referable to the posterior and lateral columns.

Spinal fluid showed no abnormalities except for a tendency to a paretic gold curve. Gastric analysis revealed hypochlorhydria. There were no evidences of pernicious anemia.

It was thought that we might be dealing with a capsulo-thalamic lesion on a degenerative basis. It was difficult, however, to

reconcile the diagnosis of a cerebral lesion with the absence of any changes referable to the cranial nerves. He was discharged for further observation.

Patient was readmitted in January, 1925, with the same complaints but increasing weakness. Definite atrophy and fibrillary twitching were now present in the muscles of the left shoulder girdle. The sensory disturbances were the same as those previously noted, but there was now demonstrated an area over the left shoulder, in the form of an epaulette, in which pain, tactile and temperature sense were impaired. Patient held his head rather stiffly.

Lumbar puncture now revealed manometric block and mild xanthochromia.

The sensory changes soon extended upward to C2. Faradic responses, in the left deltoid and biceps muscles were diminished. Fibrillation was observed in both trapezius and sterno mastoid muscles, but more especially on the left.

Fluoroscopic examination of the diaphragm showed limited excursions on the left side. No Bence-Jones bodies were found in the urine.

It was now felt that we were dealing with a lesion near the foramen magnum with antero-posterior compression of the cord at C2. It was advised that upper cervical laminectomy with partial removal of the foramen magnum be performed. This was done on May 1, 1925.

There was no evidence of bony disease. The dura appeared whitish and dense. The arachnoid seemed thicker than normal and was definitely adherent to the cord and to the dura. Overlying the first and second cervical segments, there was a dense whitish mass that seemed to mushroom out of the cord. It was quite thick and its caudal extremity spread out finger-like over the cord. Attempts to find a line of demarcation between this mass and the cord were unsuccessful. The cord was adherent to the dura on either side for a distance of two or three segments. The upper border of this mass presented a very sharp line of demarcation. This adhesive process seemed to obstruct completely the circulation of the cerebro-spinal fluid. Except for the adhesions and the mass mentioned, the cord appeared normal. The pathological condition found explained the spinal block and

the scar tissue probably accounted for the pain in this area. It was considered that the process was inflammatory rather than neoplastic (possibly luetic in origin).

Microscopic study was not made.

The patient survived the operation only 24 hours. No autopsy was performed.

HEMILAMINECTOMY

ALFRED S. TAYLOR

In the December meeting of 1909 the original paper of "Unilateral Laminectomy" was presented. It is now called "Hemilaminectomy" because of the custom among most writers.

Most neurological surgeons think the method has no advantages. The usual operation, "bilateral laminectomy," has been perfected and made easy, but there are conditions in which hemilaminectomy has decided advantages.

Before discussing them it should be stated that special instruments, designed for the purpose, are essential to the satisfactory performance of this operation. With the use of these instruments it is possible to remove the laminae of one side so as to give an exposure fully as wide and usable as that obtained in the usual bilateral laminectomy.

It will be noticed that the exposure indicated in the pictures is at an angle very favorable for the exploration of the cord with very little manipulation necessary. The following things have been repeatedly done without damage to the cord:

Exploration of the spine at all levels.

(With lumbar lordosis and thick muscles the procedure is difficult and unsatisfactory.)

Dorsal ramisection on one or both sides.

Unilateral chordotomy can be accomplished with perfect ease, but bilateral chordotomy cannot be done.

Exposure of spinal cord tumors with their removal.

These have frequently been done; tumors have varied from 3 to 5 cm. in length and 1 to 2 cm. in diameter.

They have been ventral; they have been lateral; they have been dorso-lateral. They have been removed so that there has been no evidence of damage to the cord from necessary manipulation.

Intramedullary tumors have been explored, decompressed by splitting the cord and leaving the dura unsutured.

One chondroma on the ventral aspect in the cervical region was removed with rapid improvement on the part of the patient.

Exposure of adhesive arachnoiditis simulating tumors.

Exposure of "meningo-myelitis" simulating tumors.

Therefore, hemilaminectomy can be used with safety to the patient and most of the things usually done through bilateral laminectomy can be accomplished through a hemilaminectomy.

The question is, whether under certain circumstances hemilaminectomy possesses such decided advantages over the usual procedure that it ought to be the method of choice.

Remember that in hemilaminectomy the laminae of one side and the spinous processes are left intact together with their muscular and ligamentous attachments, a great stabilizing item. This is particularly true in the cervical spine. When complete laminectomy is done the ligamentum nuchae is more or less destroyed and the only supports left to the neck are the intervertebral disc and the ligaments between the bodies of the vertebrae and articular processes.

Three cases are cited in which bilateral laminectomy in the cervical region was followed by dislocation of greater or less degree; in one case leading ultimately to death; in the third case probably causing death, and in the second case causing no trouble.

In the lumbar and sacral regions if bilateral laminectomy is done, if there is a tendency to spondylo-listhesis, then the patient has very little support against a recurrence of this disability and there is no bone so situated as to permit fusion of the spine or bone implant which would give sufficient rigidity to prevent this accident. Illustrations are given of these conditions.

Ventral and ventro-lateral tumors can be approached and disposed of through the lateral exposure natural to hemilaminectomy with far less manipulation of the cord than is feasible in the usual laminectomy.

Finally, it should be stressed that if hemilaminectomy is used for exploration and a condition is found which cannot be properly handled, it is the simplest thing in the world to convert the exposure into a bilateral laminectomy, involving as much of the field as is necessary.

Various cases were cited to illustrate and prove the assertions made in the body of the paper.

Section of Pediatrics, December 9, 1926

THE SIGNIFICANCE OF THE CHANGES IN THE CHEMISTRY OF THE BLOOD IN PERTUSSIS

JOSEPH C. REGAN

ALEXANDER TOLSTOOUHOV

This subject first began to interest the authors because of the unusual effect observed in a case of severe pertussis and gastric ulcer following the administration of alkalis. After further corroborative evidence of the curative value of the remedy, it was decided to look into the chemistry of the blood in this infection.

No information was available in the literature, the examinations of the blood heretofore published being concerned with the total and differential blood-cell counts. Therefore an investigation of this neglected field of blood chemistry was undertaken.

A total of 682 determinations were carried out, including hydrogen ion, inorganic phosphorus, calcium, carbon dioxide, urea, uric acid, creatinine, and sugar.

Two very significant alterations were found:—(1) A diminution of the total inorganic phosphorus and (2) a change in the hydrogen-ion concentration. These changes were found so frequent in the acute stage that they might almost be called characteristic.

These changes occur early in the disease, appearing even in the catarrhal stage and they are well developed, especially the alteration in phosphorus, during the first few weeks of the paroxysms. There appears to exist a certain parallelism in the changes in P H and phosphorus which signifies a close interrelation.

It does not seem plausible to assume a rachitic origin for the changes in the phosphorus, because of the age grouping of the patients, the absence of typical rickets, except in a minor number, the associated P H alterations in the blood, as well as the effect of alkaline treatment in causing a rapid rise of the inorganic phosphorus.

The calcium content while exhibiting slight mobility showed no changes of a consistent and definite type.

These changes indicate an acidosis of an uncompensated type (type 6 Van Slyke) which has as a cause the accumulation or increased concentration of free carbon dioxide in the blood. This laboratory observation is easily correlated with several of the symptoms so prominent in pertussis—the paroxysms, the vomiting, parenchymatous emphysema and convulsions.

The vomiting of the disease may be a compensatory mechanism adopted by the body to eliminate acid in an attempt to maintain a normal acid base balance.

This contention of an uncompensated acidosis is further substantiated by the effects on the disease of alkali therapy.

Alkalis administered early appear usually to abort the disease and associated with the cure is a rapid rise of inorganic phosphorus and a change in P H of the blood, while, if given late, cure supervenes in a relatively short period.

THE TREATMENT OF BEHAVIOR PROBLEMS IN CHILDHOOD

DUDLEY D. SHOENFELD

WILLIAM V. SILVERBERG

The paper describes a method whereby the behavior reactions of problem children are considered as located on a scale of behavior patterns, in which infantile responses on the one hand and mature responses on the other constitute the polarities. The child's reaction to desire and attainment is used as a practical criterion in terms of which the level of the child's behavior along the scale of behavior patterns can be roughly determined. The aim of the therapy is to adjust the child to behavior consistent

with his age by indicating to him the significance of his responses in terms of the above-mentioned polarities.

The paper also stresses the need for such a direct method of approach, in which psychoanalysis *lege artis* has up to now failed as regards the majority of behavior problems in children. It stresses also the value to social workers, teachers and parents, as well as to physicians, of making use of the concepts upon which the method is based, although the authors feel that the extended and detailed practice of the method would remain in the hands of the physician.

Section of Historical and Cultural Medicine, December 9, 1926

EDITIONS OF THE REGIMEN SANITATIS SALERNITARUM

CHARLES L. DANA

The Regimen Sanitatis Salernitarum, or Flor Medicinæ, consists of a poem of about 362 verses, in hexameters. It appeared about 1260.

A little later Arnaldus of Villa Nuova (1235-1312), a doctor, preacher, chemist and writer of a text-book on Medicine, published the Regimen with many comments. Nearly all the printed editions of the Regimen contain the Arnaldus comments, so that many have thought he was the author.

The Regimen of the School of Salerno was the layman's medical Bible for three centuries and it is still a treatise that announces correctly the fundamentals of a sound hygiene. It was one of the earliest of printed books and went through a great number of editions, in many languages, the editions coming down to the 19th century.

I have 17 editions of the School of Salerno. They were published in the following years. These different editions at different periods going over 4 centuries furnish interesting examples of printing and book-making.

1480 Venice

1480 Venice

1490	Argen (Strasburg)
1552	Leipsie
1557	Frankfort
1559	Frankfort
1609	London
1620	London—New York, 1920. Hoeber
1634	London
1649	Paris
1650	Paris
1657	Rotterdam
1657	Paris
1722	Ratispon
1871	Philadelphia
1880	Paris
1888	Paris

The best and most correct English poetic translation is that by Dr. John Ordranax (1871).

The most interesting edition from the point of view of printing and age is the small quarto (Strasburg) edition of 1490. This I prize most, personally. The two other incunabula (both 1480) are very much alike and probably came from the same press in Venice, viz., that of Bernardus Venitii de Vitalitres. The dates given in the book are 1480.

One of the editions (that of Frankfort, 1557) is freely illustrated with wood-cuts of herbs, roots, etc., and social groups illustrating the life of the day.

The date of the binding of my Salernum books is not always known. Some are contemporaneous, but no edition has a binding of very marked value except that of 1490 (which is all vellum). The English edition of 1634 is well-bound in contemporaneous sheep, and is printed in both Roman and black letter.

My editions are in Latin, English, German and French.

The rarest and most valuable edition commercially is the English translation made by John Harrington in 1608 and 1609, and known as "The Englishman's Doctor." It is an interesting example of Elizabethan literature and book-making.

The most complete and informing editions are those of Ordranax and the two volume edition printed in Paris (1880) at:

edited by Ch. Meaur Saint-Marc. It has six quaint illustrations taken from earlier works.

My last edition by Dr. Becavin [Paris, 1888] is a Student's Thesis; it is very well done and is inexpensive.

The printing of these Regimen books illustrates the progress and at times the decline of the art. The three incunabula are beautifully printed; the pages look heavy and dark and the lines are long, but every word is easily legible. The 16th century editions are also well printed; italics are now much used, and they have smaller paging. The wood-cuts are well done. The 17th century books are not interesting from a printer's point of view except that they show how badly printing could be done and was done in England in that period.

I have no *Edition de luxe* of any period.

Section of Otology, December 10, 1926

TRAUMATIC MASTOIDITIS WITH POST-OPERATIVE SIGNS SUGGESTIVE OF AN INTRACRANIAL COMPLICATION

WALTER L. HORN

H. S., a six-year-old boy, was struck by an automobile and was admitted eight hours later to the Surgical Service of the Mount Sinai Hospital. There it was noted that the right ear was bleeding profusely and that there was no apparent escape of cerebrospinal fluid and no bleeding from the nose or mouth. At no time did the child lose consciousness, but was somewhat drowsy for about two hours directly after the accident. He vomited seven or eight times and complained of headache and pain in the right ear.

On admission the child was found to be wide awake but restless. He showed no evidence of external violence, no swellings, no bruises. The pupils were equal, reacted well to light and aside from a converging strabismus, which was congenital in character, there were no objective neurological findings. The temperature, pulse and respiration were normal.

An examination of the right ear revealed a linear tear in the membrana-tympani in its upper and posterior quadrant through which bloody fluid was oozing. Hearing, however, in that ear was normal.

An X-Ray examination of the skull was not entirely satisfactory due to restlessness of the patient, but still the report read: "No visible fracture noted."

The first eight days of the patient's stay in the hospital were uneventful; the temperature, pulse and respiration remained normal. He was comfortable, did not complain of anything and was only occasionally drowsy. But on the eighth day there occurred an abrupt change; the temperature suddenly rose to 102° and continued to rise to 103°. He began to complain of severe pain in the right ear and a foul smelling purulent discharge from the right ear was noted, and there appeared a definite sagging of the posterior canal wall with edema and tenderness over the right mastoid. Hearing became somewhat impaired. The diagnosis of acute mastoiditis was made.

A simple mastoid operation was performed. At the operation a linear fracture was found. Its upper limits could not be ascertained, but beginning about 1 cm. above the floor of the middle fossa in the squamous portion of the temporal bone the fracture extended downward vertically through the floor of the middle fossa across the mastoid bone and through the posterior canal wall just above the semi-circular canals. There was some free pus and a breaking down of the mastoid cells. A free fragment of bone, apparently a portion of the floor of the middle fossa, was disclosed and removed. The overlying dura appeared normal. A subsequent bacteriological examination of pus from the mastoid showed streptococcus hemolyticus.

The post operative course was uneventful for a period of twelve days. On the twelfth day a sudden change took place; the boy complained of headache, became irritable and vomited on two occasions. The temperature rose to 100, the pulse to 100 and there developed mild meningeal signs, such as slight rigidity of the neck and bilateral Kernig. In addition there were found a definite left Babinski, hyperactive knee jerks and markedly diminished abdominal reflexes on the right side. Within a few hours there was elicited bilateral ankle clonus which was more

marked on the left side. These signs indicated a right focal lesion and in view of previously established suppurative focus in the right ear the possibility of cerebral abscess in the temporal lobe was considered.

A lumbar puncture yielded clear cerebro-spinal fluid under markedly increased pressure. There were eighty-eight cells, all lymphocytes, but no organisms on smear or culture. The neurologists favored the diagnosis of a circumscribed form of meningitis and considered surgical interference inadvisable, but the progressive advance in the condition of the patient continued, the ankle clonus became inexhaustible on the left side and the optic discs showed definite swelling. The question of a temporo-sphenoidal abscess was raised again, but the neurologists did not change their opinion and advised against operation.

The child was not operated upon. The conservative steps in the treatment were fully justified by the subsequent course of events. Five days after the onset of the acute meningeal symptoms there occurred a turn for the better. The patient showed gradual but constant improvement, the meningeal signs subsided, the organic neurological signs disappeared, so that seven weeks after the injury the child was discharged from the hospital as very much improved. Recently he was reexamined and found free of cerebral signs and symptoms and is regarded as having made a full recovery. It is rather unlikely that there should be a latent brain abscess without a single sign or symptom.

Should I be permitted to speculate somewhat on the character of the lesion which precipitated the meningeal and focus cerebral signs, I would have suggested the following possibility. You will recall that at the operation a defect was found in the floor of the middle fossa. A piece of bone was removed at this point. Is it not possible that the traumatized dura with its overlying soft meninges became involved in a circumscribed aseptic meningeal process, which gave rise to the transient neurological signs and symptoms as noted in this case?

Section of Genito-Urinary Surgery, December 15, 1926

SURGICAL ASPECTS OF POLYCYSTIC KIDNEY DISEASE

R. E. CUMMING

Surgical dealings, with vital organs already handicapped by developmental defects, at once arm the clinician with a wariness akin to the handling of poison and intrigue him with possibilities for the benefit of a certainly hopeless infirmity.

One speaks of polycystic kidneys as growing "ripe," referring to the stage at which often the disease is first recognized, the beginning of a fatal decline manifested by symptoms comparable to nephritic downward progress, renal dysfunction, uremia, anuria, death.

As can be readily presupposed, the margin of safety with polycystic kidney disease is narrow to a degree parallel with the advancement of degeneration, and always narrower than in kidney pathology engrafted upon congenitally healthy organs.

Certain diagnostic and investigative procedures familiar to the urologist serve not only to prove the presence of the disease we are discussing, but as means of improving the function of the failing kidneys, thereby possibly delaying the consummation of the disease and ultimate death. We refer particularly to cystoscopy and kidney pelvis drainage, pyelography for diagnosis, and in rare instances nephrotomy for drainage of grossly infected cyst areas. All of these manoeuvres require the utmost care and good judgment; simultaneous catheterization of both ureters being dangerous and bilateral pyelography prohibitive. Such radical steps as nephrectomy, removal of the more advanced and (presumably) the pyonephrotic kidney, are likely never of value.

Unless one is thoroughly familiar with the gross appearance of polycystic kidneys, he will occasionally be perplexed, meeting at the operating table that large cystic hydronephrotic organ which in the gross has the size and outline of true cystic disease, and is in a sense a polycystic kidney, although the simple result of obstruction and infection which have advanced to complete destruction of the organ, leaving no functioning renal tissue and filled with stale urine.

It is conceded that, of all renal anomalies, the polycystic kidney is the most important. The fact as already intimated, that one organ may show no gross evidence of the disease, does not disprove the theory that the condition is always bilateral. In many instances Davis has found in cases presenting on the one side advanced cystic degeneration and on the other a grossly normal kidney (as to cyst formation), that this other organ presented under the microscope unmistakable evidence of early cysts.

Davis' conclusions would tend to the assumption that human polycystic kidneys result from a partial cessation of development at the mesonephric stage, degenerative changes coming later to complete the picture of interference with the normal kidney function. He compares the human polycystic kidney to the normal kidney of the codfish (and other lower forms) and finds distinct similarities which are most significant, since in these lower animals the full-grown kidney is of the mesonephric type.

In Davis' series of fourteen completely studied cases, he found universal evidence of progressive characteristics and, of more importance to the clinical worker, a "marked tendency to hemorrhage and infection." This was especially noticed in the adult specimens. The gross material showed the predominating position of the majority of the well-formed cysts to be in the cortical and subcortical zones, and the oldest and largest formations near the fusion line of the lobules.

It is perhaps due to the rather uniform gross and microscopic picture, overshadowed with secondary changes (hemorrhage and infection), which the adult kidney presents, that an earlier accurate estimate of etiological possibilities has not been satisfactorily made. Davis hit upon the plan of studying young specimens, especially in early stages (in a fetus) in order to escape the changes mentioned. It is particularly from his study of a serially-sectioned polycystic kidney of a full-term fetus that he has made his admirable and probably correct analogy between polycystic types and the embryological mesonephros.

The several clinical types usually described are but transitions of one another; the slowly advancing case parallels chronic interstitial nephritis and may continue for years, while at any period it may, on the other hand, merge into the uremic type, with fatal

outcome in a few days, or, as is particularly noted by us, any given case may become surgical with pain, hematuria and pyuria. With these latter symptoms, according to the treatment and results, a given case returns to the chronic form or gradually presents grave uremia, frequently having several periods of infection.

While theoretically evacuation of as many cysts as can be reached by surgical exposure of one, or both kidneys, seems of advantage, a study of many gross specimens shows how futile such operative efforts would prove, since the cysts occupy the entire bulk of the kidney. As late writers advise the so-called Rovsing operation, we would plead a more accurate record of results obtained.

Discussion of nephrectomy is scarcely necessary; our case reports are typical of this phase of the subject; when one kidney is removed an extra load on the opposite organ apparently causes what we may term a physiological crisis, forcing any differentiation from normal to be more evident, with resulting diminution of function. Other involved organs, such as liver, are simultaneously weakened, tending to dysfunction.

Repeated pelvic drainage and lavage have often been of value, and in our hands have relieved acute symptoms repeatedly. Catheter drainage and the cautious use of weak solutions of silver nitrate have invariably checked a stubborn hematuria, and this drug may be of additional value since in all cases there has been coincident infection.

Our clinical observations are based upon a total of twenty-six cases; of these I have studied the surgical or autopsy material in twenty-two cases. For the data upon the remaining four cases I am indebted to Dr. O. S. Lowsley. It is my purpose here to give in briefest outline a clinical record of selected cases, with a summary relative to age incidence, multiple physical defects and possible surgical results.

General conclusions:

1. It is logical to assume that "congenital polycystic kidneys are caused by defective protoplasm, which may be inherited or congenital in obedience with the same biologic laws governing the recessive characteristics illustrated in phylogenetic changes and in other congenital deformities"-(Davis).

2. Davis compares the human polycystic kidney to the normal kidney of the codfish and finds distinct similarities; we can therefore assume that the generally accepted theory of cyst-formation as due to developmental defects is amplified, since there is halting at the mesonephric stage.

3. While theoretically evacuation of cysts to lessen intrarenal pressure, and nephrotomy for drainage of associated pyonephrosis, seem of value, their practical application is not satisfactory. Simpler measures, namely pelvic lavage and catheter drainage, are of decided value especially adapted to control hemorrhage and infection.

4. Nephrectomy for polycystic disease is rarely of value and usually fatal; it is often performed in ignorance of the actual pathology. Careful urological study is indicated in all cases presenting more than a simple nephritic syndrome, and caution is necessary to prevent an increased renal loss of function. Simultaneous ureteral catheterization is dangerous and bilateral pyelography impossible.

Section of Medicine, December 21, 1926

RENAL AND CARDIOVASCULAR DISEASE IN PREGNANCY: THEIR RELATION TO CERTAIN GENERAL MEDICAL PROBLEMS

JEAN CORWIN

W. W. HERRICK

The late toxemias of pregnancy represent failure of a defective maternal cardiovascular-renal system to adapt itself to the strain of childbearing. They interest the medical practitioner as early examples of disorder in this system and also as indicators of latent weakness which will reappear in later life.

Two hundred and ninety-one cases were studied at the Sloane Hospital for Women. They are classified as (1) acute convulsive toxemias, (2) nephritic toxemias, marked by long-continued albuminuria or relative nitrogen retention, and (3) hypertensive toxemias, a group of cases characterized by hypertension without

marked albuminuria and set apart because of its resemblance to "essential hypertension."

The cases were studied with special reference to the cardiovascular-renal status in the ante-partum clinic and wards and later in a follow-up clinic over periods varying from six weeks to six years post-partum. The tabulated observations show that cardiac hypertrophy, thickening of the brachial and radial arteries and certain eye-ground changes were present in a large proportion of these cases during the toxemia (this suggests that some disorder antedated pregnancy) and also during the follow-up period. Hypertension persisting for months or years was found in one-third of the cases of eclampsia, one-half of the cases of nephritic toxemia and two-fifths of the cases of hypertensive toxemia. One-half of the nephritic group showed marked albuminuria in the follow-up period.

Fetal mortality in the eclamptic group was 55 per cent., in the nephritic group 47 per cent. and in the hypertensive group 15 per cent.

Both the fetal mortality and the later incidence of signs of persistent disease were greater in those cases showing the higher blood pressure readings during pregnancy.

These types of toxemia are, therefore, not mere complications of pregnancy. It is probable that pregnancy reveals rather than causes the disease. The behavior of a woman's cardiovascular-renal system in pregnancy gives to the physician a valuable hint as to what may be expected of it under subsequent stresses and strains.

Search for a single toxin as the cause of these toxemias may continue to be fruitless. Much may be learned, however, by a broad study of the woman who makes this abnormal response to pregnancy.

Section of Laryngology and Rhinology, December 22, 1926

INJECTION OF IODIZED OIL INTO THE SPHENOIDAL SINUSES

A. LOBELL

Various opaque substances have been tried in the past for the purpose of sinuography, but it never achieved any popularity as a diagnostic method until iodized oil came into existence.

Iodized oil is a very suitable substance for the mucosa. It is antiseptic and soothing. It is highly radi-opaque. The writer, at the advice of Dr. Law, the Roentgenologist, has diluted lipiodol with equal parts of peanut oil and found it equally efficacious.

Accuracy of technique and caution are highly essential in the injection of the sphenoidal sinus because it is so intimately connected with many vital intracranial structures.

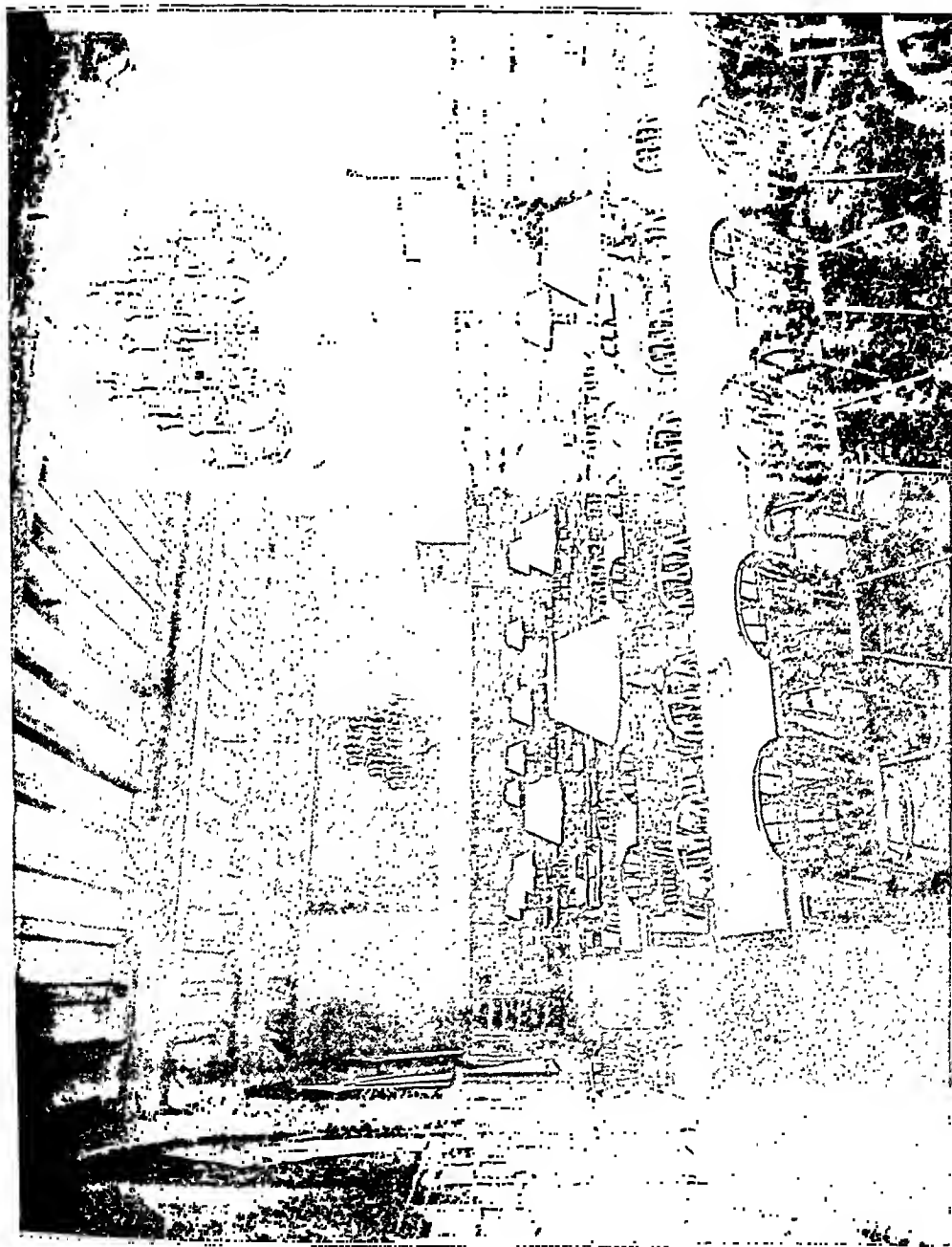
The writer has injected a number of sphenoidal sinuses by the method which he had already described in the Laryngoscope, April, 1926, without any complications. (The X-Ray plates will be shown by lantern slides and the instrument will also be demonstrated.)

Sinuography is of distinct value in the study of the morphological variations of the sinuses. The clinician, the surgeon, the teacher and the student will all find it of great utility.

From the standpoint of diagnosis it is necessary to remember that sinuography cannot replace the radiographic method. It can only serve as an auxiliary agent to the older method in obscure conditions and to elucidate certain points. It is not infallible by any means.

The injection of the sinuses for therapeutic purposes is still in the experimental and empiric stage. It deserves a fair trial.

Sinuography offers an opportunity for greater co-operation between the sinuologist and the Roentgenologist than heretofore because both participate in the production of the sinuogram for the specific purpose intended.



WOERISHOFFER HALL—READING ROOM

PROCEEDINGS OF ACADEMY MEETINGS

January

ANNUAL MEETING

Thursday evening, January 6, at 8:30 o'clock

ORDER

I. Executive session.

Reading of the minutes.

Nominations for four members of Committee on Admission.

Address of retiring president, Samuel A. Brown.

Address of incoming president, Samuel W. Lambert.

Reports of Treasurer, Council, Trustees, Committees and Sections.

II. Address:

Some clinical problems in the application of the Wassermann reaction, John H. Stokes, Philadelphia (by invitation).

STATED MEETING

Thursday evening, January 20, at 8:30 o'clock

ORDER

I. Executive session.

II. Papers of the evening: A Symposium on Backache.

a. From the standpoint of the orthopedist, Nathaniel Allison, Boston (by invitation).

b. From the standpoint of the urologist, J. Bentley Squier.

c. From the standpoint of the gynecologist, George Gray Ward.

d. From the standpoint of the neurologist, Foster Kennedy.

SECTION MEETINGS

SECTION OF DERMATOLOGY AND SYPHILIS

Tuesday evening, January 4, at 8 o'clock

ORDER

I. Presentation of patients.

a. From the Bellevue Hospital, service of Mihran B. Paroungian.

- b. From the Fordham Hospital, service of Benjamin Ochs.
- c. From the Bronx Hospital, service of Adolph Rostenberg.
- d. Miscellaneous cases.

II. Discussion.

III. Executive session.

SECTION OF SURGERY

Friday evening, January 7, at 8:30 o'clock

ORDER

I. Reading of the minutes.

II. Presentation of cases.

- a. Fecal fistula; an aid to closure, David H. Orgel.
- b. Abscess of the liver, operation, recovery, Joseph E. J. King.
- c. 1. Echinococcus cyst of the liver, operation—cure.
- 2. Benign stricture of the esophagus.
- 3. Occlusion of the common bile duct from pressure of
- 4. Carcinoma of the sigmoid in a young adult, Henry W. Cave.
- d. 1. Extensive burn with tetanus.
- 2. Burns by electricity—2 cases, John J. Moorhead.
- e. Fracture of the transverse processes of the lumbar vertebrae—3 cases, Robert H. Kennedy.

III. Papers of the evening.

- a. Metabolism in burns, John J. Moorhead, John A. Kilian, Ph.D. (by invitation).
- b. Fracture of the transverse processes of the lumbar vertebrae, Robert H. Kennedy.

SECTION OF NEUROLOGY AND PSYCHIATRY

Tuesday evening, January 11, at 8:30 o'clock

ORDER

I. Reading of the minutes.

II. Presentation of cases.

A case of extensive cerebral thrombosis (lantern slides),
Irving J. Sands.

Discussion by Leon H. Cornwall.

III. Papers of the evening.

- a. The feeling of inferiority and its compensations, Alfred Adler, Docent of the Pedagogical Institute of Vienna (by invitation).

General discussion.

- b. Sensory distribution of the facial nerve, Simon L. Ruskin (by invitation).

Discussion by Frederick Tilney, J. Ramsay Hunt.

SECTION OF PEDIATRICS

Thursday evening, January 13, at 8:30 o'clock

ORDER

I. Reading of the minutes.

II. Papers of the evening.

- a. Epidemic meningitis in the first three months of life, Josephine B. Neal, Henry Wirt Jackson (by invitation).

Discussion by Stafford McLean, Joseph B. Regan (by invitation).

- b. Encephalitis, associated with measles, Josephine B. Neal, Emanuel Applebaum (by invitation).

Discussion by Orman C. Perkins (by invitation), John D. Lyttle.

- c. A study of tuberculin-positive children in foster homes, Arthur F. Anderson (by invitation).

Discussion by Charles Hendee Smith, Oscar M. Schloss.

III. General discussion.

SECTION OF OTOTOLOGY

Friday evening, January 14, at 8:30 o'clock

ORDER

I. Reading of the minutes.

II. Papers of the evening.

- a. The philosophy of the older tests of hearing, Robert Sennschlein, Chicago (by invitation).

- b. The newer tests of hearing, with demonstration of methods, Edmund P. Fowler (by invitation).

Lantern slides.

- III. Discussion by John Rae, Harvey Fletcher, Ph.D., Director, Bell Telephone Research Laboratory (by invitation), John Guttman.

SECTION OF OPHTHALMOLOGY

Monday evening, January 17, at 8:30 o'clock

ORDER

- I. Reading of the minutes.
 - II. Clinical cases.
 - a. Sympathetic ophthalmia in a boy eleven years of age with excellent result in sympathizing eye and some vision in exciting eye, Charles Gluck (by invitation).
 - b. Case of intra-ocular sarcoma in a child. Old staphylomatous eye, microscopic and macroscopic specimen, W. B. Weidler.
 - III. Papers of the evening.
 - a. Palpitory exploration of the eye ball and the orbital contents, a matter for the diagnosis of obscure conditions heretofore little recognized, Mark J. Schoenberg.
 - b. Three cases of progressive amaurosis of retro-bulbar origin. Recovery of vision with foreign protein treatment, Julius Wolff.
- Discussion by Joseph H. Globus.

SECTION OF MEDICINE

Tuesday evening, January 18, at 8:30 o'clock

ORDER

- I. Papers of the evening.
 - a. Phosphaturia, George Baehr.
 - b. Report on fifty cases of Graves' disease observed for six years, Leo Kessel, Harold T. Hyman.
 - c. Guacher's splenomegaly with bone involvement and hemo-pericardium, Bernard S. Oppenheimer, Nathan Rosenthal (by invitation).
- Discussion.

SECTION OF GENITO-URINARY SURGERY

Wednesday evening, January 19, at 8:30 o'clock

ORDER

- I. Reading of the minutes.
- II. Presentation of new apparatus and instruments.
 - a. A new tube for suprapubic suction drainage of the urinary bladder. Illustrated by lantern slide demonstration, Frank W. Harrah (by invitation).
 - b. A new fulgurating cystoscope.
 - c. An instrument for applying heat to the prostate under vision, Oswald S. Lowsley.
- III. Presentation of specimen.
An unusually large ureteral stone. Illustrated by lantern slide, I. C. Reshower (by invitation).
- IV. Paper of the evening.
Urinary calculi. Special reference to end results, E. O. Smith, Cincinnati (by invitation).
- V. General discussion.
- VI. Executive session.

SECTION OF ORTHOPEDIC SURGERY

Friday evening, January 21, at 8:30 o'clock

ORDER

- I. Reading of the minutes.
- II. Presentation of cases.
 - a. Traumatic osteoporosis of carpal scaphoid, 2 cases. Lantern slides, Joseph Buchman (by invitation).
 - b. Axillary contracture following burn, treated with pinch grafts, Paul C. Colonna.
 - c. Solitary vertebral cyst, operation, Irving Balensweig (by invitation).
 - d. Pressure paralysis anterior crural nerve following Basini operation, Royal Lee (by invitation).
 - e. Exploratory operations in chronic arthritis of the knee joint, 5 cases. Lantern slides, Arthur Krida.

- f. Retroperitoneal abscess simulating hip disease. Operation and recovery, Armitage Whitman.
 - g. Traumatic dislocation of the sacro-iliac joint, Samuel Kleinberg.
 - h. (a) Case of spondylolisthesis. Operation.
(b) Case of pathological dislocation of hip. Operation, Charlton Wallace.
 - i. New operation for recurring dislocation of the shoulder, 1 case, Percy W. Roberts.
- III. Paper of the evening.
The etiology of cavus and a new operation for its correction. Lantern slides, J. Torrance Rugh, Philadelphia (by invitation).

SECTION OF OBSTETRICS AND GYNECOLOGY

Tuesday evening, January 25, at 8:30 o'clock

ORDER

- I. Reading of the minutes.
- II. Case report.
Persistent menstruation during successive pregnancies, D. Deutschman (by invitation).
- III. Papers of the evening.
 - a. A combined cystocele and retroversion pessary, Herman Strongin (by invitation).
Discussion by Asa B. Davis, C. F. Jellinghaus, Kyle B. Steele (by invitation).
 - b. The disadvantages of a long period in bed post-partum, H. J. Epstein (by invitation), A. J. Fleischer (by invitation).
Discussion by George L. Brodhead, Max Rosenthal.
 - c. Tracheloplasty versus tracheloplastering, M. O. Magid.
Discussion by Frederick C. Holden, A. J. Rongy.

SECTION OF HISTORICAL AND CULTURAL MEDICINE

Thursday evening, January 27, at 8:30 o'clock

ORDER

- I. Papers of the evening.

- a. The development of military medicine. Lantern illustrations, Lieut. Col. J. W. Grissinger, U. S. Army Medical Corps (by invitation).

Discussion opened by Lieut. Col. M. A. Reasoner, U. S. Army Medical Corps (by invitation).

- b. Hermann Biggs and the fight for bacteriology in New York in the nineties, Prof. C. E.-A. Winslow, Yale University (by invitation).

Discussion opened by Haven Emerson, D. B. Armstrong, W. H. Park.

RECENT ACCESSIONS TO THE LIBRARY

Baylis, H. A. & Daubney, R. A synopsis of the families and genera of nematoda.

Lond. Brit. mus., 1926, 277 p.

Bethea, O. W. Practical materia medica. 4. ed.

Phila. Davis, 1926, 498 p.

Blum, S. Practical dietetics. 2. ed.

Phila. F. A. Davis, 1926, 362 p.

Bossi, L. M. Manual de obstetricia. 2. ed.

Barcelona. Gaili, 1925, 510 p.

Colombino, C. L'esplorazione delle vie urinarie nelle pratica ostetrico-ginecologica.

Milano. Cogliati, 1926, 226 p.

Cunningham, W. H. Character, conduct and study.

N. Y. & London. G. P. Putnam's Sons, 1926, 118 p.

DeLint, J. G. Atlas of the history of medicine. I. Anatomy.

Lond. Lewis, 1926, 96 p.

Domarus, V. von. Grundriss der inneren Medizin. 2. Aufl.

Berlin. Springer, 1926, 650 p.

Ellis, H. Study of British genius.

Boston & N. Y. Houghton Mifflin co., 1926, 396 p.

Entwicklungsstadien der Tuberkulose . . . Hrsg. von C. Harms.

Leip. Kabitzsch, 1926, 182 p.

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- Hill, T. C. A manual of proctology. 2. ed.
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- Kretschmer, E. Medizinische Psychologie. 3. Aufl.
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Lond. Macmillan co., 1926, 255 p.
- Langstein, L. Dystrophien und Durchfallskrankheiten im Säuglingsalter.
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N. Y. Knopf, 1926, 392 p.
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N. Y. Harcourt, 1926, 132 p.
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- Michaelis, E. Die Menschheitsproblematik der Freudschen Psychoanalyse.
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- Modern science and people's health. Ed. by B. D. Gruenberg.
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- Sachs, B. The normal child.
N. Y. P. B. Hoeber, 1926, 105 p.
- Sampson, C. M. A practice of physiotherapy.
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- Shastid, T. H. Our own and our cousins' eyes.
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- Trendelenburg, W. Die natürlichen Grundlagen der Kunst des
Streichinstrumentspiels.
Berlin. Springer, 1925, 300 p.
- Über den Stoffwechsel der Tumoren: Arbeiten aus dem Kaiser
Wilhelm Institut für Biologie. Hrsg. von O. Warburg.
Berlin. Springer, 1926, 263 p.
- Wilson, R. M. The beloved physician, Sir James MacKenzie.
Lond. Murray, 1926, 316 p.

HOUSE RULES OF THE NEW BUILDING

The following house rules have been approved by the Council:

I. *Coat Room*—A coat room is provided for the convenience of Fellows and guests. Coats, hats, and other articles of apparel must not be left upon the chairs and tables in the reading, section and social rooms. This rule does not apply to patients and their friends who will take all wearing apparel to the waiting rooms adjoining the section rooms.

The coat room will be open from 9 A. M. to 7 P. M. and until the close of any evening meeting which is held in any of the meeting rooms.

The personnel in charge of the coat room are not allowed to solicit gratuities.

II. *Smoking*—Smoking is prohibited in the auditorium and in the library.

Fellows and guests are requested not to smoke during meetings.

Presiding officers at the various meetings are asked to call attention to this request of the Council.

Smoking is permitted in the members' reading room, the reception and collation rooms and in the halls.

Fellows and guests are requested to use due care in disposing of matches and ashes.

III. *Dinners and Suppers*—The Director is authorized to arrange dinners for the officers, trustees, committees and sections of the Academy. No assessment will be made for the use of the rooms for these groups.

Other medical societies and scientific bodies may use the reception room, collation room or both, for dinners or suppers, with the approval of the Council, for which an assessment will be made.

Approved societies making use of these rooms will employ their own eaters and will not be permitted to make use of the Academy china, linen, glass or silver. They will be held responsible for any damage or breakage to Academy property.

Alcoholic drinks must not be served by eaters or any member of the Academy staff.

IV. *Committee Rooms*—The Council and the Committee rooms shall be used only for Academy committees. Room 56, seating 18, and room 46, seating 14, may be used for outside committees.

V. *Telephone Service*—A charge of 5 cents will be made for all local calls and the regular charge for suburban and long distance calls. The telephone operator is instructed to ask for the names of persons putting in a call so that the charges may be collected. The charges will be collected either at the telephone office, by one of the library staff or by the man in charge of the information room.

Before a meeting and at the close of meetings, telephone calls may be put in only at telephone office and information desk.

FELLOWS RECENTLY ELECTED

The following named Fellows were elected at a Stated Meeting of the Academy held January 6, 1927:

Ralph Henderson Boots, M.D., 113 East 56th Street.
 David Chapman Bull, M.D., 159 East 56th Street.
 E. Everett Bunzel, M.D., 850 Park Avenue.
 John Patriek Caffey, M.D., 45 East 55th Street.
 Frances Cohen, M.D., 609 West 114th Street.
 Paul Crenshaw Colonna, M.D., 59 East 54th Street.
 John Dennis Cooney, M.D., 264 West 71st Street.
 William Brown Doherty, M.D., 150 West 55th Street.
 Edward Joseph Donovan, M.D., 507 West 113th Street.
 William Phelan Driscoll, M.D., 5 East 53rd Street.
 Edward Raymond Easton, M.D., 116 East 58th Street.
 James Francis Faulkner, M.D., 351 East 50th Street.
 John Winston Fowlkes, M.D., 30 West 59th Street.
 Frank Freeland, M.D., 281 State St., Hackensack, N. J.
 Meyer Harry Freund, M.D., 645 West End Avenue.
 Margaret Evelyn Fries, M.D., 9 West 82nd Street.
 Byron Heazelton Goff, M.D., 116 East 63rd Street.
 Irving Gray, M.D., 112 Clinton St., Brooklyn, N. Y.
 Leo Joseph Hahn, M.D., 145 West 86th Street.

- Julius Arky Haiman, M.D., 240 West 98th Street.
 Leland Earl Hinsie, M.D., Psychiatric Institute, Ward's Island,
 N. Y.
 Otto Rudolph Holters, M.D., 513 Second Ave., Asbury Park, N. J.
 George Hall Hyslop, M.D., 116 East 63rd Street.
 Adolf Jacoby, M.D., 151 West 77th Street.
 James Wesley Jobling, M.D., 228 West 71st Street.
 William Clinton Johnson, M.D., 25 Tulip St., Summit, N. J.
 James Louis Joughin, M.D., 114 East 54th Street.
 James Craig Joyner, M.D., 853 Seventh Avenue.
 Isador William Kahn, M.D., 801 West End Avenue.
 Marion E. Kenworthy, M.D., 105 East 53rd Street.
 Alvin Walter Klein, M.D., 123 East 53rd Street.
 George August Koenig, M.D., 11 East 68th Street.
 Louis Winfield Kohn, M.D., 427 Park Avenue.
 Benjamin Kramer, M.D., 6 Pierrepont St. Brooklyn, N. Y.
 Rudolph Kramer, M.D., 121 East 60th Street.
 Carl Henry Laws, M.D., 12 Pierrepont St., Brooklyn, N. Y.
 Samuel Zachary Levine, M.D., 3364 N. 35th Street, Flushing,
 L. I., N. Y.
 Ralph J. Levy, M.D., 302 West 77th Street.
 Kenneth Mark Lewis, M.D., 59 East 54th Street.
 Asa Liggett Lincoln, M.D., 140 East 37th Street.
 Edith Maas Lincoln, M.D., 140 East 37th Street.
 Philip Joseph Lipsett, M.D., 302 West 86th Street.
 Ralph Irving Lloyd, M.D., 14 Eighth Ave., Brooklyn, N. Y.
 William Frank MacFee, M.D., 33 East 68th Street.
 John McDowell McKinney, M.D., 33 East 68th Street.
 Louis Marton, M.D., 55 Central Park West.
 Frank Lamont Meleney, M.D., 11 West 69th Street.
 Henry Milch, M.D., 2178 Broadway.
 Ralph Rembrandt Moolten, M.D., 1078 Madison Avenue.
 Francis Louis Morhard, M.D., 907 Cauldwell Avenue.
 William Wallace Morrison, M.D., 39 East 50th Street.
 James B. Murphy, M.D., Rockefeller Institute, First Ave. and
 66th Street.
 Henry Alexander Murray, Jr., M.D., 50 Brimmer St., Boston,
 Mass.
 Samuel Zachary Orgel, M.D., 145 West 71st Street.

George Guttman Ornstein, M.D., 150 West 55th Street.
 Harold Lese Otto, M.D., 471 Park Avenue.
 Frank Overton, M.D., Patchogue, L. I., N. Y.
 Russel Hugo Patterson, M.D., 135 East 65th Street.
 Frank Gordon Pedley, M.D., 104 Maple Ave., Mamaroneck, N. Y.
 Frederick Prime, M.D., 131 East 66th Street.
 Jules Jehin de Prume, M.D., 29 West 87th Street.
 Walter Eugene Rahte, M.D., 876 Park Avenue.
 Erich Herbert G. Restin, M.D., 132 Park Ave., Mt. Vernon, N. Y.
 Paul Reznikoff, M.D., 1379 Union St., Brooklyn, N. Y.
 Guilford Allen Robinson, M.D., 653 Park Avenue.
 Samuel Solomon Rosenfeld, M.D., 1272 Grand Concourse.
 Zachary Sagal, M.D., 320 West End Avenue.
 Saul Simon Samuels, M.D., 164 West 79th Street.
 Henry Suydam Satterlee, M.D., 175 East 71st Street.
 Newton Thomas Saxl, M.D., 232 East 72nd Street.
 Henry Morris Scheer, M.D., 522 West End Avenue.
 Bela Schiek, M.D., 17 East 84th Street.
 Charles Wadsworth Schwartz, M.D., 33 East 68th Street.
 Ernest Bartine Smith, M.D., 1629 Spruce St., Philadelphia, Pa.
 Morley Thomas Smith, M.D., 650 Main St., New Rochelle, N. Y.
 Ramsay Spillman, M.D., 480 Park Avenue.
 Lewis Dunbar Stevenson, M.D., 20 West 50th Street.
 John Edward Sutton, Jr., M.D., 811 Lexington Avenue.
 Lucy Porter Sutton, M.D., 811 Lexington Avenue.
 Joshua Edwin Sweet, M.D., 39 Fifth Avenue.
 Henry Keller Taylor, M.D., 333 West End Avenue.
 August Stephen Astor Thommen, M.D., 24 East 48th Street.
 William Carson Von Glahn, M.D., 45 East 55th Street.
 Lewis Clark Wagner, M.D., 105 East 38th Street.
 Thomas Edward Waldie, M.D., 50 East 75th Street.
 John Jacob Westermann, Jr., M.D., 2 East 96th Street.
 Ira Solomon Wile, M.D., 264 West 73rd Street.
 William Henry Woglom, M.D., 545 West 111th Street.
 Walter Stuart Woodruff, M.D., 421 Huguenot St., New Rochelle,
 N. Y.

and for Associate Fellowship :

Frederick Bonner Flinn, A.B., 376 Vose Avenue, South Orange,
 N. J.

John Adams Kingsbury, B.S., 49 Wall Street.

Ernest Lyman Scott, B.S., Ph.D., Furnald Hall, Columbia University.

William Dwight Tracy, D.D.S., 46 West 51st Street.

DEATHS OF FELLOWS OF THE ACADEMY

William Rose Hynes, M.D., 78 West 92nd Street, New York City; graduated in medicine from the University of Chicago in 1900; elected a Fellow of the Academy December 3, 1908; died December 13, 1926.

Samuel Lloyd, M.D., B.S., 30 East 40th Street, New York City; graduated in medicine from the University of Vermont in 1884; elected a Fellow of the Academy May 7, 1891; died December 19, 1926. Dr. Lloyd was a Fellow of the American Medical Association, a Fellow of the American College of Surgeons; a member of the Alumni Association of Post Graduate Hospital and of the Alumni Association of St. Luke's Hospital. He was also director of surgery at the Lutheran Hospital and consulting surgeon at Post Graduate, St. Francis, Italian, Benedictine, Kingston, United Portchester, St. Francis, Poughkeepsie, and St. Mary's Hospital, Orange, N. J.

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Medicine

DAVENPORT WEST
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Surgery

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FREDERICK T. LAU
STANLEY R. WOODRUFF

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Orthopedic Surgery

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TABLE OF CONTENTS

Address of the Retiring President: SAMUEL A. BROWN.....	143
Address of the Incoming President: SAMUEL W. LAMBERT.....	148
Report of the Trustees.....	151
Abstract of the Treasurer's Report.....	154
Auditor's Report.....	157
Finances of the Academy.....	157
Statement of Special Funds.....	159
Report of the Historical Secretary.....	163
Report of the Committee on Admission.....	165
Report of the Library Committee.....	166
Report of the Public Health Relations Committee.....	172
Report of the Committee on Medical Education.....	178
Attendance at Section Meetings.....	181
Hosack Bed for Sick and Needy Physicians.....	182
Donations to the Library Funds.....	182
Form of Bequests	183
Academy Meetings.....	183
Fellows, Associate Fellows, Honorary Fellows, and Bene- factors of The New York Academy of Medicine.....	184

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HELD JANUARY 6, 1927
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ACADEMY OF MEDICINE

VOL. III

MARCH, 1927

No. 3

ADDRESS OF THE RETIRING PRESIDENT

SAMUEL A. BROWN

During the last two years, the attention of most of the Fellows of the Academy has been directed to the new building. There were undoubtedly many who felt it unwise to have finally determined on a site which seemed to be far removed from the well-beaten paths of doctors' offices and homes. The move, as will be recalled, was largely one of economy, which has resulted in a saving to the Academy of over \$700,000.

The success of the new building needs no comment here except a word of appreciation of the services rendered by the Building Committee and our renewed expressions of gratitude to the Carnegie Corporation for its munificence.

However, there are other things than the building and we know from experience that satisfactory work and progress can be made by human beings even amidst adverse surroundings. We may possibly run into a danger of becoming self-satisfied because we have a large and handsome building which may make some exacting demands for time on some of our staff.

Notwithstanding the amount of time and attention given to the question of the building, not only by the Building Committee but by the Board of Trustees, a considerable number of other activities have been carried on with success as well as a number of changes which I will leave to you to determine, whether or not they are improvements.

The Committee on Public Health Relations during the last year has completed its fifteen years of service and has earned the respect and attention of national, state and local governmental authorities as well as that of many private agencies. Its advice and counsel are frequently sought and given freely. The committee is not an operating but an investigating and advisory one and in general its policy has been not to engage in legislative matters or in propaganda to bring about the adoption of its recommendations. During the past two years it has performed several notable services which may in some degree seem to transcend the time-honored functions of investigation and advice. In December, 1925, the newly elected Mayor of the City asked the Committee to advise with him as to the selection of a Health Commissioner, and there are several matters connected with this story that must be understood with every degree of clarity. First, the Committee had no candidate. Second, when its representatives waited upon the Mayor, he presented them with a list of twenty-five names of individuals who were seeking appointment and asked if the Committee would not review the list and indicate to him which ones were qualified by experience in public health administration to administer successfully the work of the Health Department, and further to suggest the names of any other physicians, residents of the City of New York, who the Committee believed were also qualified by training and experience. The Committee complied with the Mayor's request and presented him with a list of four names, one of which was chosen by the Mayor to be the Commissioner of Health of New York City. This task was a delicate one, as the majority of the candidates were Fellows of the Academy, but the Committee in its deliberations considered only the one factor, whether or not the individual had had the training and experience necessary to qualify him for the position. The recommendations were made irrespective of Borough residence, political affiliation, religious faith and personal connections. During the spring and summer of 1926, representatives of this Committee, with representatives of the New York Tuberculosis and Health Association and the American Public Health Association, made a preliminary survey of the Health Department, estimating its needs, its policy, and its methods of administration. A number of recommendations

were made. Here again the Committee followed up its recommendations and in particular in regard to the budgetary requests, and representatives of the Committee appeared before the Board of Estimate and Apportionment to argue in behalf of their recommendations, with the result that additional funds were appropriated for a renewal of the activities of the Bureau of Public Health Education, for the consolidation of the public health nurses and the reorganization of the nursing work of the Department and for scientific research in the Department of Health Laboratories. These results fully justified the expenditure of time and effort of the Committee in its endeavor to support the activities of the Health Department. During the winter of 1925, the Committee prepared an autopsy bill which was adopted by the legislature and became a law, which provided that autopsies could be performed upon patients who died in hospitals unless relatives registered their objection within twenty-four hours after death. It was expected that this legislation would increase the number of autopsies. It has been found that hospitals are loath to carry out the provisions of the law, fearing to hurt the feelings of relatives of patients dying in the hospitals. In this particular instance, the Committee supported its recommendation by actually having the bill introduced into the legislature and by interviewing members thereof and urging the passage of the bill. One of the objections to the adoption of this bill was raised by anatomists who feared that the supply of anatomical material would be curtailed, but this has not been found to be the case.

The Committee on Medical Education, now well organized, has through a number of sub-committees investigated all of the supplementary and refresher courses which are carried on in the medical schools and hospitals and has given the stamp of its approval to a large number of them. In a number of instances, however, it has refused to approve of courses and has pointed out to the teachers conducting them the reasons why it could not give its approval. This has resulted in changes in the courses and improvements, with final approval by the Committee. The Bureau of Clinical Information has been maintained with satisfaction and is becoming more and more known and more widely utilized by physicians coming from all parts of the United States and abroad. In 1924, 1925 and 1926, 47 states and 60 foreign

countries have been represented. At the present time, the whole machinery of post-graduate education and the qualifications and training necessary for specialization in medicine are being given special consideration by the Committee.

There is another matter which I desire to bring to your attention which I believe to be of the greatest importance for the welfare of the Academy. In January, 1924, as a result of conferences with the Rockefeller Foundation, it was made possible to appoint a Director of the Academy for the coordination of its educational activities. The Director has now been in office for three years and I want to point out to you some of the advantages of having such an officer—and some of the dangers. With the continued growth of the Academy's activities, it had become more and more difficult to divide the work satisfactorily between the various officers, and with the busy practitioners it was difficult to arrange for frequent meetings. It was inevitable that if the work of the Academy were to succeed it must have an executive coordinating officer. During this period of three years a number of changes have taken place in the Academy administration. The Constitution and By-Laws have been re-written and although not yet perfect are a marked improvement upon the old. The method of handling the finances of the Academy has been regulated so that the handling of bills and accounts and the rendering of monthly reports to the Trustees are promptly and effectively administered. The Director has served on all of the committees and has acted as Secretary of many of them and has been able to bring to the Council information and recommendations in a personal way which has been advantageous to the Academy's work. Notwithstanding these advantages and improvements there is a danger that a Director may assume some of the powers and privileges of the officers, so that the Academy might become entirely under his rule. It is hardly necessary to say that, in any organization where an executive is employed, the officers will seek from him suggestions and recommendations, as he should be more familiar with the work of the organization than anyone else. I am glad to say that there have been no signs or indications of an endeavor on the part of the Director to perform any act of aggrandizement to the detriment of the officers responsible for the administration of the Academy. On the con-

trary, it has been partly due to his recommendations that the Board of Trustees was increased from five to ten, that the Committee on Admission was increased from five to nine members, and that the Committee on Public Health Relations and Medical Education were increased in size. It was also partly due to his recommendations that other special committees have been appointed which have brought to the Academy a larger authority of experience and knowledge culminating in recommendations which have brought good results. In fact during the past year a total of 103 Fellows have rendered service on the following committees at work in the interests of the Academy: Committees on Admission, Art, Building, Endowment, Exhibits, Library, Medical Education, Nominations, Opening Ceremonies, Public Health Relations, Program and Publications. When this is compared with the number of Fellows serving on committees five years ago, one will see that instead of autocracy, which might have been feared, we have done our utmost to increase the democracy of the Academy.

We have also been fortunate in securing as Librarian Dr. Archibald Malloch, who has brought to us not only a wide clinical knowledge and experience in medicine, which has developed in him a realization of the needs of medical men in the field of medical literature, but who has also brought with him a wide knowledge of books. The work of the library has increased, and, with its installation in our new building, offers ample opportunities for rendering additional service to the Fellows and others who are engaged in work requiring the use of medical literature and that of the allied sciences. You will find in the reports of the library and the various committees and sections a more detailed record of the work which has been performed, and it is my sincere hope that the Fellows of the Academy will appreciate the need of personal service and that the Academy staff are always ready and willing to receive suggestions and criticisms and will do all in their power to remove difficulties and improve the Academy's facilities to meet the needs of the Fellows.

In closing, I want to thank my colleagues who have labored with me during the period of reorganization and construction and to express to them my earnest wish to do whatever I can to further the interests of the Academy during my coming term of

service as a Trustee. I shall always look back with the keenest pleasure upon the two years during which I had the honor of serving as President of the Academy.

DECEMBER 24, 1926.

ADDRESS OF THE INCOMING PRESIDENT

SAMUEL W. LAMBERT

In assuming the office of President of the Academy I must emphasize my deep appreciation of the honor which has come to me at your gift. I realize the exaggerated estimate which you have put on my powers to carry on your ideals far better than do you, and I assume the duties with personal misgivings but with a will to do what may be in me to justify your choice. That I succeed so many presidents of noteworthy value to the institution is an added responsibility.

The New York Academy of Medicine is not a local medical club, it has become a national institution. This building is one of the beautiful architectural monuments of the city. It was built and endowed in lesser part by the donations of the Fellows of the Academy, but also by the generous gifts of many other citizens and of the large educational foundations which have thus endorsed the purposes and projects of this Academy. This building is an asset of which we may be proud, but it is also a liability which calls for increased expenditure now and in the future.

The Fellows of the Academy have taxed themselves by doubled dues to carry on the annual expenses as at present outlined in the budget, but no one must forget that the future will always call for increasing endowments to meet the necessary expenses of the present work, and also to expand into the unknown and compelling activities of the future. This Academy, like every educational institution, cannot stand still, it must ever go on to new fields of work or retrograde and slip from its position of prominence.

The work of the Academy is of three kinds, that of its scientific sections, that of its medical library and that of its committees. In addition, it offers in its building, offices and lecture

rooms for many allied medical associations of this city and county, including the incorporated State and County Societies of the organized profession.

At the public dinner recently given by the Academy to welcome its newly elected honorary Fellows, the Library was emphasized as its chief function by all three of the celebrated visitors who spoke on that occasion. The growth of the Library was the compelling cause of our removal to this site; it stands out as the cause for our new building and occupies much the greater part of it. Its future growth must be assured, for it is now one of the ranking medical libraries of the country and such it must remain. Its staff has been doubled and the floor space for readers increased more than sufficiently to care for the Fellows of the Academy and for the general medical public during the whole time that its doors are open. All restrictions for the fullest possible use of this great collection of books should be removed except for those regulations necessary to protect the books themselves from injury and abuse.

The work of the scientific sections of the Academy represents its oldest and strongest hold on the medical profession. The recent advances in knowledge are presented in this manner to the Fellows and visiting practitioners in groups which are interested and specialized in every branch of medical art. If any suggestion can be made at this time, it is to call attention to the fact that the lecture rooms in this building offer facilities for the handling of patients, and for the making of all special examinations, which were seriously lacking in our quarters in 43rd Street. It is now possible, and I believe it will be considered desirable, to give a greater clinical, and a less theoretical character to the meetings of the various sections.

Perhaps the greatest advance in the work of the Academy is centered in the two Committees which of recent years have linked this institution to visiting physicians from distant cities and to the general public and government of the city. The Committee on Education investigates the courses in graduate teaching tendered by the several schools and hospitals and gives or withholds its approval. The Academy has grown to be the central source for distributing knowledge of clinics and courses in graduate instruction throughout New York. A new departure has been inau-

gured by this Committee and a course of 16 lectures for practitioners of medicine known as "the practical lecture series" will be given this year on Friday afternoons of each week during the months January to April. It seems fitting to suggest that the Academy consider the desirability of doing something similar for the lay public. The ordinary citizen is interested to-day in nothing more than in medical facts and theories. His education is the best if not the only efficient means of combatting the cheats and fake cures which are still relieving the public of substantial funds and by delay depriving many persons who are ill of their best chance of a cure of their ailment. It is true that the new medical law will make the life of the individual illegal practitioner quite uncomfortable, but it cannot control the active teachings of the anti-progress associations which combat the use of vaccine, antitoxin, animal experimentation and other features of modern medical science. This Academy may well consider the starting of such a plan of education to combat the propaganda of falsehood which is now so prevalent. Whatever the Academy may do in education, it should never offer courses for pay, or enter into activities which might be construed as belonging to a graduate school of medicine.

The Committee on Public Health Relations covers a very extensive field. There is no limit to its work in the study of the problems of the profession in its relations to its patients, both those in private practice and those in the public hospital services.

There is no question of public health too small or too intricate which cannot be investigated by this Committee. Every Fellow

The Fellows only was complimented and enthused with zeal for dues to carry on when he heard Mayor Walker express in no mean the budget, but no feelings of indebtedness to the Academy for its call for increasing the department of health under his administration, and the present work, an

pulling activities of the Academy referring to a recent five to four decision tional institution, cannot. With the immediate question of how long fields of work or retrograde Academy may have no special concern. But nence.

of that decision, carrying, as it does, an The work of the Academy, that Congress can control and therefore sections, that of its regulating medical practice, every physician. In addition, it offers become involved in a controversy of

which no man can now foretell the import or final end. Medical practice has flourished under State control for the duration of these United States, and the whole profession should resent and oppose actively every attempt to bring the medical profession under a distant and centralized governmental power.

In conclusion, I can promise to give my best endeavors to fulfil the obligations which I have assumed, to go with the Fellows of the Academy always forward to greater accomplishment in the science and art of medicine and to increase the public activities of the Academy in fostering the educational tenders of the hospitals and schools; in advising and supporting the municipal authorities which direct the public and private health of the city; and in keeping its library at the highest possible stage of development and usefulness for all the citizens of New York. We must all work together to make The New York Academy of Medicine the real center of medicine, not only of Manhattan Island, but of this large metropolitan district and of the surrounding states.

REPORT OF THE TRUSTEES

The Trustees of The New York Academy of Medicine report that they have held nine meetings at which many financial matters were considered, largely in connection with the new building. At the beginning of the year it had been anticipated that there would be a small deficit at the end of the year, the size depending upon the time that the new building was occupied, as the budget for 1926 was adopted on the basis of expenditure in the building at 17 West 43rd Street. The operation of the new building has necessitated an increased expenditure of approximately \$5,000, but a donation of \$10,000 has changed the deficit to a surplus of \$2,000.

The Trustees, during a period of several years, have given serious consideration to the cost of the operation of the new building and the forecast of expenditures for 1927, and this was expected to be \$40,000 over and above the income. This led to the recommendation that the membership be slightly increased and that the dues be increased to \$40 per annum, both of which recommendations were adopted by the Academy during the year.

Upon the recommendation of the Trustees, a special Endowment Committee was appointed which has produced the following results: one gift of \$10,000 a year for five years for the general expenses of the Academy has been promised, and this amount with the increased income from dues should meet the expenses of the Academy in 1927. In addition, this Committee has secured a gift of \$10,000 from the Altman Foundation for the current expenses of the Academy already referred to. The Trustees also desire to record their appreciation of the donation of \$7,500 from Mrs. E. H. Harriman for the salary of the Executive Secretary of the Committee on Public Health Relations, and also a contribution of \$1,000 from the Altman Foundation and \$1,000 from the Hartley Foundation for the work of this Committee.

The final report of the Building Committee and of the expenses in connection with the installation of equipment and furniture and fixtures is not complete.

During the year an additional lot on East 103rd Street, adjoining the original property obtained for the new building, was purchased, an area of 25' x 100', at a cost of \$17,500, which was leveled and paved at a cost of approximately \$4,000. This space may be used for the parking of eight automobiles.

The Trustees have voted a budget for the year of 1927 amounting to \$222,086, expecting an income of \$223,270, in which no part of the segregated items may be increased without the approval of the Trustees.

A summary of the budget is as follows:

1927 BUDGET

Estimated Income

	<i>Principal</i>	<i>Income</i>
Real Estate (83rd Street).....		\$ 500.00
Securities	\$987,417.78	
Less equipment new building.....	142,000.00	
	<hr/>	
	\$845,417.78	\$42,270.00
	<hr/>	
Balance, sale of 43rd Street.....	745,000.00	

		<i>Principal</i>	<i>Income</i>
Less:			
Comm'n	\$ 8,050		
Interest	5,200		
Balance on new building.....	41,500		
Mortgage	100,000		
	<u>154,750.00</u>		
		<u>590,250.00</u>	14,750.00
Members Dues			68,000.00
Room Assessments			10,000.00
Witthaus Estate			6,000.00
Contributions			17,500.00
Sales, Bulletins, etc.			500.00
Library Dues			750.00
Interest on Bank Deposits			500.00
Rockefeller Appropriations			62,500.00
			<u>\$223,270.00</u>

Estimated Expense

Administration

Salaries (inc. light & phone).	\$31,198.00	
Expenses	13,200.00	
	<u>44,398.00</u>	

Operation

Salaries	28,240.00	
Expenses	25,900.00	
	<u>54,140.00</u>	

Library

Salaries	52,240.00	
Expenses	25,800.00	
	<u>78,040.00</u>	

Public Health

Salaries	11,190.00	
Expenses	2,000.00	
	<u>13,190.00</u>	

Medical Education

Salaries	11,604.00	
Expenses	10,300.00	
	<u>21,904.00</u>	

Corporation

Items per schedule		7,995.00
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Special Funds

Carpenter Lectureship	319.72	
Gibbs Prize	1,500.00	
Loomis Entertainment	600.00	
	<u>2,419.72</u>	

222,086

December 20, 1926.

Rockefeller Appropriations:

Direction and Librarian's Salary.....	\$20,999.96	
Union Check List.....	1,800.00	
Bibliographic and Library Service	8,000.00	
Bulletins	4,012.85	
Bureau of Education.....	12,942.19	
General Survey	5,000.00	
Scientific and Professional Meet- ings	645.00	
To complete balance in rotating fund	3,224.88	
		56,624.88
Carpenter Lectureship Fund		287.95
Gibbs Prize Fund		1,110.78
Loomis Entertainment Fund		550.00
		\$186,835.13
Plus balances, January 1, 1926.....		21,357.60
		\$208,192.75
Less Holt Memorial Tablet Fund.....		671.22
		<u>\$207,521.51</u>

Expenditures

Administration, Operation and Corporation Ex- pense	\$ 61,621.86	
Library	58,986.01	
Public Health Relations and General Survey.....	15,971.83	
Direction	13,000.00	
Committee on Medical Education and Bureau of Clinical Information	17,942.19	
Carpenter Lecture, 1926	250.00	
Collations	440.00	
	\$168,211.89	
Plus 1925 deficit	2,294.56	
		<u>170,506.45</u>
INCOME SURPLUS, December 31, 1926		\$ 37,015.06
Less Balances in Restricted Funds:		
Rockefeller Revolving Fund	\$10,000.00	
Public Health and General Survey.....	3,233.70	
Carnegie Medical Education.....	2,835.36	
Gibbs Prize Fund.....	2,925.76	
Carpenter Lectureship Fund.....	119.84	
Loomis Entertainment Fund	585.96	
First District Dental Society Fund.....	521.40	
Fund for Old Rare Books.....	407.60	
		<u>20,629.62</u>
INCOME BALANCE, December 31, 1926.....		\$ 16,385.44

During the years 1925 and 1926, the Academy has paid on account of the new building the amounts summarized below:

Builder's Certificates	\$1,419,503.63	
Architects' Fees	93,298.21	
Consulting Architect's Fees	9,990.51	
Consulting Engineer's Fees	4,363.52	
Acoustical Engineer's Fees	400.00	
Equipment Certificates and Sundry Equipment ..	128,859.54	
Moving Expense	6,998.48	
		\$1,663,413.89
Received from Carnegie Corporation to December 31, 1926	\$1,527,553.87	
Paid from New Site and Equipment Fund.....	135,858.02	
		\$1,663,413.89

SETH M. MILLIKEN,
Treasurer

AUDITOR'S REPORT

We have audited the accounts and records of The New York Academy of Medicine for the year ended December 31, 1926. We hereby certify that the Balance Sheet herewith submitted, in our opinion, correctly sets forth the financial condition of The New York Academy of Medicine as of December 31, 1926; that the statement of Income and Expenditures is in accordance with the accounts and records for the year ended December 31, 1926.

W. B. DICKENSON & COMPANY

FINANCES OF THE ACADEMY

Preliminary drafts of the probable expenses of the Academy in its new building were made in 1924 and again in 1926, which showed a probable expenditure for the year 1927 of \$222,672. Forecasts of the income of the Academy for 1927 were made on the same occasions and anticipated a deficit of \$45,000. This anticipated deficit led to a recommendation and adoption of an increase in the dues to \$40 for resident Fellows and the appointment of an Endowment Committee to secure funds for the permanent endowment of the Academy's activities, some of which are maintained by gifts.

The anticipated income of the Academy for the year 1927 will be \$223,270, as follows:

Interest on securities and real estate	\$ 42,770.00
Interest on money invested from balance of 43rd Street sale—8 months	14,750.00
Members' dues	68,000.00
Contributions and Witthaus Estate	23,500.00
Room assessments	10,000.00
Sales, library dues, and bank interest	1,750.00
Rockefeller appropriation	62,500.00
Total	<u>\$223,270.00</u>

At a meeting of the Trustees held on December 22, 1926, a budget was adopted amounting to \$222,086.72, which is summarized as follows:

<i>Administration and Direction</i> (including salaries and expenses)	\$ 44,398.00
<i>Operation of the Building</i> (salaries and expenses).....	54,140.00
<i>Corporation Expense</i> (including interest and legal services	7,995.00
<i>Maintenance of Library</i> (including salaries, ex- penses, Union Check List and bibliographers)	78,040.00
<i>Committee on Public Health Relations</i> (salaries, ex- penses and publications)	13,190.00
<i>Committee on Medical Education and Bureau of Clinical Information</i> (salaries, expenses and Academy bulletin)	21,904.00
<i>Carpenter Lecture</i>	319.72
<i>Gibbs Prize Fund</i>	1,500.00
<i>Loomis Entertainment Fund</i>	600.00
Total	<u>\$222,086.72</u>

The actual appropriations are made in a segregated manner which may not be exceeded without the approval of the Trustees.

The attention of the Fellows has been called to the fact that the maintenance of the Committee on Public Health Relations and the Committee on Medical Education, part of the Library and the Academy administration is without expense to the Fellows. The expenditure for the maintenance of the building amounts to 80 per cent. of the dues received from Fellows and the balance of the amount received from dues is applied to library activities.

SETH M. MILLIKEN,
Treasurer

STATEMENT OF SPECIAL FUNDS
TRUST FUNDS OF THE NEW YORK ACADEMY
OF MEDICINE

Library Funds for the General Purposes of the Library:

THE LIBRARY FUND

Formed by gifts and from sales. Established in
1878 \$ 46,882.25

HORACE PUTNAM FARNHAM, M.D.,
LIBRARY FUND

Gift of Mrs. Eliza C. Farnham, in memory of her
husband, the late Horace P. Farnham, M.D.,
former Vice-President of the Academy. Estab-
lished in 1889 10,000.00

J. MARION SIMS MEMORIAL
LIBRARY FUND

Gift of the Sims Monument Committee, as a me-
morial of the late James Marion Sims, M.D.
Established in 1896 100.00

JAMES S. CUSHMAN LIBRARY FUND

Gift of William F. Cushman, M.D., late Treasurer
for the Trustees, as a memorial of his brother.
Established in 1897 1,000.00

DR. ORVILLE RANNEY FLOWER LIBRARY FUND

Gift of the late Governor Roswell P. Flower, as
a memorial of his uncle, Orville Ranney Flower,
M.D. Established in 1897 1,000.00

ANNA WOERISHOFFER LIBRARY FUND

Gift of Mrs. Anna Woerishoffer, established by the
Academy as a special library fund in recognition
of many generous contributions. Established
in 1897 15,000.00

WILLIAM T. LUSK MEMORIAL LIBRARY FUND

Established by legacy, and gift of the children of
the late Dr. William T. Lusk. Established in
1898 1,000.00

SEMI-CENTENNIAL LIBRARY FUND

Established by the Semi-Centennial Celebration Committee, December 13, 1898	500.00
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GERMAN HOSPITAL AND DISPENSARY
LIBRARY FUND

Gift from the Collegium of the Physicians of the German Hospital and Dispensary. Established December 3, 1903	3,076.90
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ALBERT WILLIAM WARDEN MEMORIAL
LIBRARY FUND

Legacy of Albert William Warden, M.D. Estab- lished December 15, 1906	950.00
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LANDON CARTER GRAY MEMORIAL LIBRARY FUND

Legacy of Landon Carter Gray, M.D. Established in 1911	46,596.05
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RUDOLPH A. WITTHAUS, M.D., LIBRARY FUND

Legacy of Rudolph A. Witthaus, M.D. Established in 1917. Principal not yet in the hands of the Trustees, but will probably be about	120,000.00
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Library Funds restricted for the purchase of books:

DR. EVERETT HERRICK LIBRARY FUND

Legacy of Everett Herrick, M.D. Established in 1915	25,000.00
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PHILIPPINE MEYER AND ERNST JACOBI
LIBRARY FUND

Gift of Mr. Jacob Meyer and Dr. A. Jacobi. In- come to be used for the purchase of books. Established in 1887	14,486.00
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MERRILL WHITNEY WILLIAMS LIBRARY FUND

Gift of Mrs. Robert M. Gallaway, as a memorial of her father. Income to be used for the pur- chase of books. Established in 1895	220.00
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ERNST KRACKOWIZER LIBRARY FUND

Gift of friends of the late Ernst Krackowizer, M.D.
 Income to be used for the purchase of books.
 Established as a library fund in 1897, was
 originally a prize fund 1,798.05

AUSTIN FLINT, M.D., LL.D., MEMORIAL
LIBRARY FUND

Established by certain alumni of the Bellevue
 Hospital Medical College, and friends of the late
 Austin Flint, M.D., LL.D. Income to be used
 for the purchase of books. Established July 2,
 1910 1,200.00

*Library funds restricted for the purchase of
special books:*

THE BULLOWA MEMORIAL LIBRARY FUND

Gift of Jesse G. M. Bullova, M.D., and others, in
 memory of their brother, Ferdinand E. M.
 Bullova. Income to be used for the purchase of
 books relating to the ductless glands. Estab-
 lished in 1919 757.03

A. L. NORTHPROP, D.D.S., DENTAL LIBRARY FUND

Gift of First District Dental Society, N. Y. Income
 to be used for the purchase, binding and care
 of books upon Dentistry. Established in 1897..... 250.00

DR. JAMES P. TUTTLE LIBRARY FUND

Legacy of James P. Tuttle, M.D. Income to be
 used for the purchase of books on Diseases of the
 Digestive Tract. Established in 1913 1,000.00

Funds restricted to Special Uses:

WESLEY M. CARPENTER LECTURESHIP FUND

Legacy of Wesley M. Carpenter, M.D. Income to
 be used annually for one medical lecture. Estab-
 lished in 1891 5.813.09

EDWARD N. GIBBS MEMORIAL PRIZE FUND

Gift of Mrs. Edward N. Gibbs and Miss George Barker Gibbs (now Mrs. Charles H. Sherrill). Income to be awarded to a research worker on Diseases of the Kidney. Established in 1901..... 17,439.33

ALFRED LEE LOOMIS ENTERTAINMENT FUND

Legacy of Alfred Lee Loomis, M.D., Ex-President of the Academy. Income to provide refreshments after meetings of the Academy. Established in 1895 10,000.00

Unrestricted General Funds:

ENDOWMENT FUND

Formed by the admission fees of the Fellows and by any special donations or bequests that may be received for the fund. The income shall be expended, as necessary, for the construction, betterment or maintenance of the Academy. Established October 19, 1905 43,004.24

GENERAL PERMANENT FUND

Formed by all gifts to The New York Academy of Medicine not otherwise specifically designated by donors. (Includes the legacies of Alexander B. Hosack, \$70,000.00, Everett Herrick, \$25,000.00, and Ramon Guiteras, \$4,911.80, and land and building occupied by the Academy.) Income to be used for the purpose of advancing medical science under the direction of the Trustees..... 791,268.55

Total of Trust Funds \$1,158,341.49

The total amount of the restricted funds is \$853,100, all of which is invested in guaranteed first mortgages on New York City property with the exception of one \$500 bond valued at \$300.

SETH M. MILLIKEN,
Treasurer

REPORT OF THE HISTORICAL SECRETARY

I have the honor to present the following report, as Historical Secretary, for the year 1926:

During the year the following organizations have maintained their offices in the Academy buildings:

- American Otological Society.
- Committee on Dispensary Development.
- First District Dental Society.
- Hospital Information Bureau.
- Medical Society of the County of New York.
- Medical Society of the State of New York.
- Physicians' Mutual Aid Association.
- Society for the Relief of Widows and Orphans of Medical Men.

Meetings have been held in the Academy buildings by these organizations:

- Advisory Committee, Willard Parker Hospital.
- American Association of Hospital Social Workers.
- American Hungarian Medical Association.
- American Medical Association Committee.
- American Society for Regional Anesthesia.
- American Stomatological Association.
- American Urological Association, New York Society.
- Association of Dental Hygienists.
- Association of Italian Physicians of America.
- Association of Tuberculosis Clinics.
- Associated Out-Patient Clinics.
- Beth Israel Hospital Examinations.
- Children's Welfare Federation.
- Committee on Maternal Health.
- Convalescent Conference, Hospital Information Bureau.
- Dental Society of the State of New York.
- Eastern Medical Society of the City of New York.
- Educational and Efficiency Society for Dental Assistants.
- First District Dental Society, General and Sections.
- German Medical Society.
- Good Samaritan Dispensary.
- Harlem Dental Society.

Manhattan Dermatological Society.
 Medical Association of the Greater City of New York.
 Medical Society of the County of New York.
 Mental Hygiene Committee Lectures.
 Metropolitan Medical Society.
 National Tuberculosis Association.
 New York Academy of Pharmacy.
 New York Dermatological Society.
 New York Electrotherapeutic Society.
 New York Neurological Society.
 New York Pathological Society.
 New York Psychoanalytic Society.
 New York Roentgen Society.
 New York Society of Anesthetists.
 New York Society of Clinical Psychiatry.
 New York Society of Graduates in Medical Gymnastics and
 Massage.
 New York Society for Thoracic Surgery.
 New York Surgical Society.
 New York Tuberculosis Association.
 New York Veterinary Medical Society.
 Society of Medical Jurisprudence.
 Tuberculosis Preventorium for Children.
 Women's Medical Association of New York City.
 Yorkville Medical Society.

Accommodations, free of charge, have been granted during the year to:

American Heart Association.
 Biggs Memorial Committee.
 Dental Advisory Committee of New York City, Department
 of Health.
 The Harvey Society.
 New York Heart Association.
 New York State Board of Medical Examiners.
 Physicians Conference on European Relief.

During the year, the following members of the Academy have died:

Joshua L. Barton
 Ernest S. Bishop
 Glentworth R. Butler
 William F. Campbell
 Arthur S. Corwin
 Byron C. Darling
 Franklin A. Dorman
 William K. Draper
 Samuel J. Druskin
 Alexander Duane
 Emanuel C. Fleischner
 Thomas J. Hillis
 Edwin Holmes
 Lucius W. Hotchkiss
 John Howland
 Ernest V. Hubbard
 William R. Hynes
 Arthur M. Jacobus
 Max Kahn
 William H. Katzenbach
 Samuel Lloyd

Francis R. Lyman
 Carlos F. MacDonald
 Frederick S. Mandlebaum
 Henry Moffat
 Charles E. Nammack
 Charles W. Paekard
 S. McAllister Payne
 George A. Peck
 John G. Perry
 John D. Quaekenbos
 Robert G. Reese
 Julius Rudisch
 August M. Sartorius
 Charles Seham
 August Seibert
 Bernard S. Talmey
 Thomas M. Taylor
 Samuel W. Thurber
 Robert J. Wilson
 John W. Wright

Respectfully submitted,

CHARLES M. WILLIAMS,
Historical Secretary.

COMMITTEE ON ADMISSION, REPORT FOR YEAR 1926

Your Committee begs leave to submit a statistical report as follows:

Number of candidates recommended for election:

To Fellowship	156
To Associate Fellowship	13
Waiting list as of December 31st.	57

Three reinstatements were recommended during the year.

The service of the new application blank aids the Committee materially in coming to prompt decisions.

It is felt that the enlargement of the Committee has been desirable from three distinct points of view: It gives a better possibility of having a considerable number of men present at every meeting; it lessens the responsibility of each member of the Committee; and, is desirable because there is apt to be someone present who knows some of the men who are making application.

JOHN J. MOORHEAD,
Chairman

REPORT OF THE LIBRARY COMMITTEE

On January 1, 1926, our new Librarian, Dr. Archibald Malloch, was installed, and during his absence, while making himself familiar with the best medical libraries both in this country and abroad, the work of the Library was in charge of our most efficient and devoted Acting-Librarian, Mrs. L. E. Smith.

The Library Committee has spent much time considering the recommendations for the revision of the Constitution and By-Laws of the Academy and of the Library. The revisions were accepted by the Library Committee and referred to the Director, and are now incorporated in the last issue of the Constitution and By-Laws of The New York Academy of Medicine for 1926.

The Library Committee is very much interested in supplying bibliographical service both for the Fellows and all who may desire to consult the Library for exhaustive research. A chief bibliographer was appointed. She proved very satisfactory but she has returned to Europe. In the immediate future another such person will be engaged and gradually a department will be built up. It is intended that a charge, the scale of which has not yet been determined, shall be made for such work. That the Academy should be responsible for the inaccuracies—the sins of omission and commission—which are bound to creep into the work of the bibliographers, would not be just. The writer of the paper should bear the blame. Of course, the Academy will employ the most expert people that can be found for such work.

MOVING

From July 15th until September 7th the Library was closed to all readers, and on August 2nd the Mayfair Van and Express Company began to move approximately 133,000 books from the stacks in the old to the more spacious ones at the new building. During this time 104,549 pamphlets, several thousand duplicate books, and about 10,000 volumes of duplicate periodicals were transferred. By September 7th this work was done in spite of the fact that the elevator in the new stacks was not in running order. One hundred and thirty-four loads were required. Eighteen men were employed in the moving. Nothing but praise can be said for the way in which the movers and the members of the library staff, especially Mr. Place and Mr. Smith, worked under the very trying conditions of the August weather. It was quite remarkable that practically no damage was done to the books and that, as far as is now known, none were lost. All the labels for the boxes had been written out before the actual move began and everything went with scarcely a hitch.

The transportation of the 8,000 volumes of bound periodicals from the old reading room, 2,013 classics and incunabula, the current journals, portraits, etc., began on November 4th. This required ten loads, and the new house was set in order for the opening on November 18th.

Before the actual move began in August, a great number of triplicate books and magazines were given away to other medical libraries and to the Medical Library Exchange, which is under the control of the Medical Library Association. By so doing good material was not lost, for owing to lack of time and help the lists of the books and periodicals for sale or exchange could not be prepared and sent out. Even after librarians had taken what they required and the Exchange had received all it wished, seven and one-half tons had to be sold merely as old paper, for the book dealers would not buy the volumes. The proceeds from this sale (\$75.50) were added to the principal of the General Library Fund.

GROWTH OF THE STAFF

During the year we have appointed Miss Doe as an assistant in charge of the periodicals; Miss Potter as an assistant cata-

loguer; Miss Buchanan as an assistant who will have charge of mending and of the bodily care of the books; Miss Ingemann, who will complete the much wanted shelf list; Miss Nathalie Smith as secretary to the Librarian, replacing Miss Joel, who left the Academy to be married; Mr. Emde, who is to be in charge of the photostat room, where, by January, 1927, reproductions will be made, at a moderate cost, for all who require them; Mr. Judson as an attendant who will inquire of all who leave the Library with books, whether they have authority to do so; and finally four boys to act as pages to fetch and carry.

STUDY ROOMS AND CUBICLES

On the third mezzanine floor are eight locked study rooms with table and chairs, which can be engaged by Fellows, failing these, by the public, for their own use. There will be a *pro rata* assessment of fifteen dollars per month for this service, but no room can be assigned to an individual for a longer period than three months. Those who have the study rooms may keep their own books and those belonging to the Library (for which they have signed) there, but the Academy reserves the privilege of access to these latter volumes should they be required by readers below.

On the ninth, eighth and seventh floors of the stacks fifteen small cubicles for reading, provided with a window, table and chair, are situated. It has been decided there will be no assessment for these rooms. They will be allotted to Fellows by the Librarian but not for a longer period of time than one week.

A SPECIAL FUND

In May some of the Fellows of the Academy generously subscribed \$650.00 to a fund for the purchase of rare books. Thus far the following works have been obtained: Celsus, *De medicina*, 1478, for \$177.86; Gilbert, *De magnet*, 1600, for \$140.08; Gesner, *Bibliotheca instituta et collecta* . . . 1574, for \$24.35; and Fuchs, *De historia stirpium*, 1542 (the great herbal), for \$195.00. The prices of the medical classics are going up rapidly and we have not been rich enough to procure a copy of the first printed medical book (by Rabanus Maurus, 1467), a copy of which was recently on sale for about \$1,200.00.

STATISTICAL REPORT

The following donors gave more than twenty books each:

Dr. S. T. Armstrong	27	New York Hospital	26
Dr. F. W. Bancroft	35	Willard Parker Hospital	20
Dr. George Biggs	26	Dr. McA. Payne	94
Mrs. Nathan Brill	745	Dr. Edward H. Quinn	34
Dr. A. C. Burnham	24	Dr. D. D. Roberts	44
Dr. Herbert Carter	33	Mrs. L. Y. Robinson	39
Dr. C. N. Dowd	127	Rockefeller Foundation	75
Dr. J. M. F. Eagan	177	Rockefeller Institute	50
Miss Fleck	81	Dr. Paul Rosenheim	99
Dr. A. Freeman, Jr.	28	Dr. G. Sanders	71
Dr. Herman Goad	67	Mrs. Mary K. Small	50
Dr. W. C. Guth	92	Dr. Charles Stevens	21
Dr. Alfred F. Hess	78	Estate of Dr. B. Talmey	60
Dr. H. Heiman	89	Dr. W. Gilman Thompson	114
Lederle Laboratories	115	Dr. Benjamin Tilton	33
Dr. M. D. Lederman	100	Dr. Philip Van Ingen	89
Dr. H. C. Leroy	115	Dr. Robert J. Wilson	27
Dr. L. B. Meyer	20	Mrs. R. J. Wilson	50

According to their custom the following publishing houses have kindly donated volumes from their presses:

D. Appleton and Company	18	Paul B. Hoeber, Inc.	8
The Century Company	1	Lea and Febiger	24
F. A. Davis Company	6	C. V. Mosby Company	2
Funk and Wagnalls	2	Oxford University Press	36
Harcourt, Brace and Company..	1	W. B. Saunders Company	32
William Wood and Company	7		

A. Books.

Books accessioned from December 19, 1925, to December 26, 1926, inclusive	5,160
Books and periodicals bought and accessioned	2,866
Books and journals donated by publishers	391
Books donated by members and societies	1,903

A2. Total number of books accessioned (not including duplicates)

December 26, 1926	144,480
Number of pamphlets accessioned	100,939
Pamphlets catalogued and accessioned during year	2,854

We are now receiving regularly periodicals as follows:

American	623	Italian	104
British	204	Spanish	96
French	191	Other Languages	85
German	323	Total	1,626

B. *Circulating Department.*

1919	3,192 books and pamphlets, (2,336 books) (856 pamphlets)	1,825 journals, issued 2,677 times to 556 members, publishers and other libraries.
1920	4,191 books and pamphlets, (3,081 books) (1,110 pamphlets)	2,264 journals, issued 3,455 times to 634 members, publishers and other libraries.
1921	4,527 books and pamphlets, (3,311 books) (1,216 pamphlets)	3,105 journals, issued 4,170 times to 677 members, publishers and other libraries.
1922	4,284 books and pamphlets, (3,350 books) (934 pamphlets)	2,955 journals, issued 3,961 times to 689 members, publishers and other libraries.
1923	4,175 books and pamphlets, (3,197 books) (978 pamphlets)	3,172 journals, issued 3,885 times to 696 members, publishers and other libraries.
1924	4,432 books and pamphlets, (3,302 books) (1,130 pamphlets)	3,681 journals, issued 4,293 times to 720 members, publishers and other libraries.
1925	4,500 books and pamphlets, (3,181 books) (1,319 pamphlets)	3,708 journals, issued 4,342 times to 713 members, publishers and other libraries.
1926	3,362 books and pamphlets, (2,453 books) (909 pamphlets)	2,825 journals, issued 3,306 times to 629 members, publishers and other libraries.

C. *Reading Room.*

		Holiday and Sunday Readers
1919	..... 23,500	1919 620
1920	..... 27,475	1920 776
1921	..... 34,290	1921 768
1922	..... 31,160	1922 541
1923	..... 29,700	1923 526
1924	..... 27,400	1924 587
1925	..... 33,425	1925 708
1926	..... 22,350	1926 613

(Library was closed July 15th–September 6th and November
7th–18th)

D. *Bookbinding.*

Total numbers of volumes bound	4,320
Cost of such binding	\$ 8,426.05

E. *Finance.*

Bookbinding, current volumes	\$ 4,380.15
Bookbinding, back volumes	4,045.90
Completing Files	406.39
Subscriptions	7,497.31
New Books	5,285.37
Library Traveling	146.40
<hr/>	
Total	\$21,761.52
Expenses	21,761.52
Salaries	25,737.41
Union Check List	1,800.00
Bibliographic and Library Services	8,000.00
<hr/>	
Total	\$57,298.93

F. *Growth of the Library.*

The additions to the Library, which have been accessioned since 1919 during the last eight years are as follows, exclusive of duplicates:

1919	2,468	volumes	and	4,355	pamphlets
1920	4,614	"	"	615	"
1921	5,000	"	"	2,259	"
1922	2,976	"	"	4,389	"
1923	4,416	"	"	5,739	"
1924	3,362	"	"	6,422	"
1925	5,135	"	"	3,756	"
1926	5,160	"	"	2,854	"

2 incunabula and some other rare books

Since the last report there have been 651 cards issued for the use of the Library during afternoons and evenings.

There are 30 annual Library subscribers registered in 1926.

To all those who are interested in the present work and future needs of the Library, and especially the foundation of a permanent endowment fund, which it is my earnest wish to see established, the reports of our Director, Dr. L. R. Williams, and of our Librarian, Dr. Archibald Malloch, in the March and June numbers of the *Bulletin* and the address of our President, Dr. Samuel Brown, are especially recommended.

Respectfully submitted,

FRANK J. BLODGETT,
Chairman

BRIEF SUMMARY OF THE WORK OF THE COMMITTEE ON PUBLIC HEALTH RELATIONS

I. THE HEALTH DEPARTMENT

Survey of the Health Department.

The Committee participated actively in a survey of the Health Department made at the request of the Commissioner of Health under the joint auspices of the Academy, the New York Tuberculosis and Health Association, and the American Public Health Association. This report was based on an intensive analysis of all the functions of the Health Department, and served as a basis for the preparation of the budget of the Department of Health for the year 1927.

The Illegal Practice of Medicine.

The Committee expressed its belief that the Health Department should continue its interest in the enforcement of the law against illegal practice of medicine. This action was taken early in the year, prior to the passage of the Webb-Loomis Act, which strengthens the law and provides machinery for its enforcement.

The Smoke Nuisance.

The Committee endorsed the efforts of the Commissioner of Health to abate the smoke nuisance and, in a resolution, expressed its reasons.

Composition of the Board of Health.

The present composition of the Board of Health was a matter under discussion. In the opinion of the Committee both the Constitution and the functions of the Board should be revised, and certain tentative suggestions have been made on the subject.

II. THE DEPARTMENT OF EDUCATION

Classes for Cardiopathic Children.

An extensive inquiry was made with reference to the desirability of the segregation of cardiac children in special classes in the public schools. The Committee advised against the continu-

ance of these classes unless under proper medical organization and guidance.

Division of Physical Training.

At the request of the Superintendent of Schools, a study was made of the work and responsibility of the Division of Physical Training of the Department of Education, and a report was prepared outlining the opportunities for the work of this Division and the type of leadership it requires.

School Lunch Inquiry.

The Committee joined with other organizations interested in child welfare in a protest against the prevailing system of farming out the school lunch services to concessionaires who have in mind solely the making of profit out of these services. It was felt that the educational value of the school lunch service should be stressed and the best made of the existing opportunity which hitherto had been neglected.

School Dental Clinics.

The Committee held several conferences on the subject of the organization of the school dental service. It was the opinion of the Committee that no attempt should be made to do more than prophylactic and educational work in connection with the school clinics, but that it might be advisable perhaps to change the policy from fixed clinics to traveling clinics so that the children in all schools might have the advantage of the prophylactic work of the school dentists and their assistants.

III. HOSPITALS

Consolidation of Municipal Hospitals.

In January the Committee waited on the Mayor and presented to him a memorandum on the health and hospital needs of the City as well as a tentative draft of a bill for the consolidation of hospitals which had been worked out by the Committee.

Neurological Service on Welfare Island.

The Committee has advised with regard to the reorganization of the Neurological Service at Welfare Island, and the new ar-

rangement seems to be much superior to that under which the Service formerly operated.

Psychiatric Service at Bellevue Hospital.

Following an inquiry from the Citizens' Union with regard to the need of a psychiatric hospital in connection with Bellevue, a report was prepared, giving the reasons why such service is needed at Bellevue Hospital to supplement the State care of the insane.

Radiographer at Bellevue Hospital.

The Municipal Civil Service Commission asked the opinion of the Committee with regard to the position of radiographer at Bellevue. The Committee expressed its belief that the examination should be open and competitive.

IV. CONSOLIDATION OF FEDERAL HEALTH ACTIVITIES

The Committee's opinion was asked with regard to the desirability of consolidating into one department the various health activities of the Federal Government. Several conferences were held on the subject, at one of which the Surgeon-General of the U. S. Public Health Service was present. Subsequently, the Committee endorsed the bill introduced in the House of Representatives by Mr. Parker.

V. STUDIES

Carbon Monoxid Report.

The report reviewing the literature on carbon monoxid poisoning was published in the BULLETIN of the Academy. There has been a considerable demand for the report from various sections of the country.

Religious Healing.

The report on religious healing was published in the *Journal of the American Medical Association* and also in the *Journal of Mental Hygiene*. There has been a large demand for the report and it has been accorded favorable comment.

Child Health Study.

Progress has been made in preparation of the report on the subject.

VI. GENERAL

Teaching of Optometry.

The resolutions of the Committee on the subject of the teaching of optometry were sent to the trustees of Columbia University. The Committee pointed out that no one should be accepted as a student in an optometry course other than medical students or graduates of medicine, and that no degree in optometry should be given except to medical graduates.

Drug Addiction.

The bill known as the Jenks's Bill, which provided for State enforcement of the Harrison Federal law, was endorsed by the Committee.

Convalescence.

The work initiated by the Committee in the field of institutional convalescent care has been developed by a special committee of the Hospital Information Bureau and a valuable directory published. The sub-committee of the Committee on Neurological Convalescence has conducted a study of the results of convalescent care in a selected group of neuro-psychiatric patients.

The Committee endorsed the efforts of the Heart Association to obtain uniform reporting of cases as a basis for research work in the convalescent care of cardiac patients.

Preventive Medicine and the General Practitioner.

There is need of a compendium on the subject of preventive medicine for the use of the general practitioner, and a special sub-committee has been appointed to prepare the subject-matter in book form.

The Centenary of Lister.

The Committee formulated suggestions with regard to the celebration of the 100th anniversary of the birth of Lister, which falls on April 5, 1927. The suggestions made were presented to the Council of the Academy.

Feeble-mindedness.

A conference was held with the Chairman of the Commission on Mental Defectives with regard to the problems of control. The Committee was informed that the several recommendations made in the report published in 1913 have been carried out by the Commission.

Selective Sterilization.

Early in the year, Dr. Potter, Clinical Director of Letchworth Village, appeared before the Committee and described the studies which are being made at the institution relative to heredity in feeble-mindedness. The question of selective sterilization of certain types of feeble-minded was considered.

Reporting of Cases of Insanity.

At the request of the Health Department, the Committee considered the desirability of reporting all cases of insanity to a central authority, and it was the opinion of the Committee that this would be difficult as well as impracticable.

Public Health Education.

The danger of certain methods of health teaching to children was discussed, also the need of further studies of mental development in relation to physical development.

Weight Reduction.

The Committee was represented at a conference called by the American Medical Association and the *Delineator* on the dangers associated with uncontrolled weight reduction.

Vulvo-Vaginitis in Children.

The need of a study of the problem of vulvo-vaginitis in children and the method of treatment was brought before the Committee and a special sub-committee was appointed to look into the matter.

Sanitary Control of the Milk Supply.

The Committee has undertaken jointly with the New York Tuberculosis and Health Association a study of the whole problem of milk supply and milk products.

Sewage.

The Committee took action to stimulate public interest in the conditions of the sewage disposal system of this City, which is utterly inadequate for the needs of the City.

Welfare Council.

The Committee voted to participate in the activities of the New York Welfare Council.

Rabies.

The question of vaccination of dogs against rabies has been called to the attention of the State and City health authorities.

Conference with Sir Arthur Newsholme.

During his brief stay in this country last spring, Sir Arthur Newsholme attended one of the meetings of the Committee and conferred on a number of problems in which the Committee has been interested.

Testimonial Dinner to Dr. Dana.

On the 15th anniversary of the existence of the Committee, a dinner was tendered the Chairman, Dr. Dana, at the University Club.

VII. LEGISLATION

The bills before the State Legislature in which the Committee were interested were as follows:

The bill prohibiting the administration of anesthesia by any one except a physician.

The Committee objected to the provisions of this bill.

The bill allowing the school boards to employ optometrists for testing the sight of school children.

The Committee protested against the principle involved of allowing persons not trained to recognize eye diseases to do refraction work.

The bill for the reorganization of the State Government in so far as it related to the Department of Health.

Attention was called to the need of redefining the qualifications for the office of Commissioner.

Bond Issue for the State Health Laboratory.

The Committee endorsed the bill authorizing the bond issue for the further extensions to the State Laboratory.

Tax Exemptions of Charitable Institutions.

The bill providing for the termination of the exemptions from taxation granted to charitable and religious institutions in Westchester County was discussed in relation to the need of defining the amount of land required in connection with Convalescent Homes.

License of Chiropractors.

The Committee has followed the legislation regarding the license of chiropractors, and was represented at the hearing recently held by the Commission appointed by the Legislature to inquire into the subject of chiropractic.

VIII. MISCELLANEOUS

Other matters that came before the Committee, which were of a minor nature and on which no action was taken, were:

- (a) The Use of Carbon Dioxide for Refrigerating Purposes.
- (b) The Foot-printing of New-born Babies.
- (c) The Equipment of Ambulances.
- (d) The War Memorial in Central Park.

Respectfully submitted,

CHARLES L. DANA,
Chairman

REPORT OF THE COMMITTEE ON MEDICAL EDUCATION

The work of the Committee on Medical Education has been carried on in accordance with a plan of activities formulated by the Committee at its first meeting of the year and later approved by the Council of the Academy. Under this plan the Committee has assumed additional duties and has undertaken further expansion of activities already existing.

Plan of Activities

1. To continue the survey of graduate medical education in New York with a view to improving the value of existing opportunities and encouraging the development of additional ones; to lend approval to those courses which after investigation have been found to be well organized, with adequate equipment and clinical material, and given by physicians of character who are known to be qualified teachers in their special lines of work.

2. To arrange or assist in arranging lectures and lecture courses, clinical symposia, and similar features of graduate medical education in New York City.

3. To plan and arrange programs for the stated and section meetings of the Academy in cooperation with the officers of sections.

4. To supervise the publication of the *Bulletin* of the Academy of Medicine and of other periodicals which may be published by the Academy.

5. To maintain a bureau of clinical information. The bureau will carry on such functions as:

To provide a central meeting place or headquarters where visiting medical men may obtain information regarding all medical activities of the city;

To collect, classify and give out information regarding opportunities for graduate medical study in cities of the United States, Canada, and other countries; to answer inquiries in connection therewith;

To publish daily and weekly bulletins of surgical and medical clinics;

To publish announcements of approved opportunities for graduate medical study offered in New York City.

The annual survey of opportunities for graduate medical study in the city has been made by sub-committees which have duly reported to the full Committee the results of their work. During the year a few courses have been discontinued, notably, two long courses in Ophthalmology for specialists. On the other hand, there has been a marked increase in the total number of new courses offered, amounting altogether to four long courses for

specialists and sixty-two short courses of the refresher or continued instruction type, given in medical schools and teaching hospitals.

At the request of the New York Tuberculosis and Health Association, the Committee arranged a short course in Cardiology for North Harlem physicians to be given at two hospitals. The course proved to be a very successful one, the attendance being large and regular. Of interest is the fact that a larger number of white physicians attended the course than colored.

A series of fourteen lectures for the general practitioner has been arranged for the coming year to be given at the Academy on Friday afternoons, beginning in January.

Acting upon the suggestion of the Director of Medical Education in the Rockefeller Foundation, the Committee has undertaken to prepare for publication a general description of post-graduate medical education as it exists in New York State.

A synopsis of approved opportunities for graduate medical study in Roentgenology in New York was published in September. A revision of the synopsis in Dermatology and Syphilology was published in October. Both of these synopses have been widely distributed. Altogether, eleven synopses in the clinical specialties and one in medical science, laboratory and preclinical subjects have been published.

A booklet entitled "Opportunities for Clinical Study in New York Hospitals," was published in May and has met with much favorable comment. An editorial notice of the booklet which appeared in the *Journal of the American Medical Association* for August 14, contained the following statement: "In no other city in this country have the facilities for graduate instruction been so well organized, or the hospitals and clinics so carefully catalogued. The larger cities of this country, with their many well conducted hospitals and dispensaries, provide a great abundance of excellent clinical material which, if properly organized either through some such central committee or through university graduate medical schools, could be utilized in the higher education and training of physicians. Such organization for graduate medical instruction now constitutes one of the greatest needs in medical education in this country."

An announcement of the activities of the Academy and the facilities offered by the Bureau of Clinical Information has been printed in four languages and circulated in this country and in Europe. The Spanish translation is carried as an advertisement in the Spanish edition of the *Journal of the American Medical Association*.

The daily bulletin of surgical clinics has been published regularly throughout the year. It posts the operations to be performed each day in seventy-five hospitals of greater New York. The weekly bulletin of medical clinics is now called the "Bulletin of Non-operative Clinics and Conferences," and is published in *Medical Week* at the expense of the bureau. The weekly bulletin has been much enlarged and at this time announces clinics in thirty or more special subjects given in forty-one important hospitals of the city, as compared with eight special subjects in twelve hospitals at the corresponding date in 1925.

The number of medical men visiting the bureau has continued to increase. A total of 551 have registered during the year. Four hundred and thirty-eight have come from the United States and dependencies, forty from Canada, twenty-four from South America, forty-seven from Europe, two from Syria, one from South Africa, five from China, twelve from Japan and seven from Australia.

Respectfully submitted,

JAMES F. MCKERNON,
Chairman

ATTENDANCE AT SECTION MEETINGS

The reports of secretaries of the sections show that during the year the average attendance at section meetings has been as follows:

Section of Dermatology and Syphilis	135
“ “ Surgery	64
“ “ Neurology and Psychiatry	83
“ “ Pediatrics	97
“ “ Otology	78

Section of Ophthalmology	68
“ “ Medicine	117
“ “ Genito-Urinary Surgery	117
“ “ Orthopedic Surgery	83
“ “ Obstetrics and Gynecology	58
“ “ Laryngology and Rhinology	62
“ “ Historical and Cultural Medicine	67

HOSACK BED FOR SICK AND NEEDY PHYSICIANS

Attention is directed to the following extract from the will of Mrs. Celine B. Hosack:

“I do give and bequeath unto my executors, hereinafter named, the sum of Ten Thousand Dollars, in trust, to apply and pay the same (or so much thereof as may be necessary) to The Roosevelt Hospital in the city of New York, to purchase a bed which, in memory of my husband, shall be known as the Hosack Bed, and which shall be occupied from time to time by such sick and needy physicians as may for that purpose be named or designated by the President and Treasurer for the time being of The New York Academy of Medicine.”

DONATIONS TO THE LIBRARY FUNDS

Donations and bequests are solicited by The New York Academy of Medicine for the maintenance and expansion of the Library.

A donation or bequest of \$5,000 or more will provide for a special library fund, the income of which may be used for the general purposes of the Library or restricted to the purchase of books and periodicals, as the donor or testator may indicate.

FORM OF BEQUESTS

The following is a brief legal form as a suggestion under which bequests may be made in behalf of the Academy:

I give, devise and bequeath unto "The New York Academy of Medicine" of the City of New York, State of New York, a corporation duly incorporated by the Legislature of the State of New York by an act, entitled "An Act to Incorporate The New York Academy of Medicine," passed June 23, 1851, and amended June 4, 1853, June 2, 1877, and April 24, 1925.

ACADEMY MEETINGS

Stated Meetings

1st and 3rd Thursdays.

Section Meetings

Dermatology and Syphilis, 1st Tuesday.

Surgery, 1st Friday.

Neurology and Psychiatry, 2nd Tuesday.

Pediatrics, 2nd Thursday.

Otology, 2nd Friday.

Ophthalmology, 3rd Monday.

Medicine, 3rd Tuesday.

Genito-Urinary Surgery, 3rd Wednesday.

Orthopedic Surgery, 3rd Friday.

Obstetrics and Gynecology, 4th Tuesday.

Laryngology and Rhinology, 4th Wednesday.

Historical and Cultural Medicine, date varies.

Trustees, Council and Committee Meetings

Trustees, 4th Wednesday.

Council, 4th Wednesday.

Committee on Admission, 1st Wednesday.

Committee on Library, 2nd Tuesday.

Public Health Relations Committee, Mondays.

Committee on Medical Education, 2nd Thursday.

RESIDENT FELLOWS

- | | |
|-------------------------------------|-------------------------------------|
| 1883 Abbe, Robert | 1921 Atkins, Richard T. |
| 1913 Abbott, Theodore J. | 1898 Atkinson, James Wm. |
| 1901 Abraham, Joseph H. | 1919 Atonna, Carmelo |
| 1910 Abrahamson, Isador | 1906 Atwood, Charles E. |
| 1917 Abramowitz, E. William | 1910 Auchincloss, Hugh |
| 1921 Adair, Frank Earl | 1912 Auerbach, Julius |
| 1889 Adams, Calvin Thayer | 1909 Avery, Oswald T. |
| 1901 Adams, Charles F. | 1918 Babcock, James W. |
| 1905 Adams, Warren S. | 1918 Baehr, George |
| 1916 Addoms, Lewis P. | 1916 Bailey, Cameron V. |
| 1909 Agatston, Sigmund A. | 1911 Bailey, Harold C. |
| 1908 Aitken, James Francis | 1901 Bainbridge, William
Seaman' |
| 1907 Albee, Fred H. | 1918 Bainton, Joseph H. |
| 1918 Alexander, Lawrence
D., Jr. | 1921 Baketel, H. Sheridan |
| 1905 Alger, Ellice M. | 1924 Bakwin, Harry |
| 1920 Allen, Frederick M. | 1900 Baldwin, Helen |
| 1881 Allen, Thomas H. | 1907 Ballin, Milton J. |
| 1921 Altman, Emil | 1914 Bancroft, Frederic W. |
| 1915 Ames, Thaddeus H. | 1914 Bandler, Clarence G. |
| 1915 Amey, J. Willis | 1901 Bandler, Samuel W. |
| 1918 Amster, J. Lewis | 1908 Bang, Richard T. |
| 1918 Anderton, Walter P. | 1920 Banker, George T. |
| 1924 Andresen, Albert F. R. | 1924 Banowitch, Morris M. |
| 1923 Andrews, George C. | 1926 Barach, Alvan LeRoy |
| 1909 Aranow, Harry | 1914 Barber, W. Howard |
| 1918 Armstrong, Arthur S. | 1908 Barringer, Benjamin S. |
| 1924 Armstrong, Donald B. | 1908 Barringer, Emily Dun-
ning |
| 1922 Armstrong, Edgar B. | 1906 Barringer, Theodore
B., Jr. |
| 1917 Armstrong, Edward
McP. | 1924 Barrows, David Nye |
| 1889 Aronson, Moses | 1913 Barshell, Samuel |
| 1906 Arrowsmith, Hubert | 1909 Bartlett, Frederic H. |
| 1913 Asch, Joseph Jefferson | 1905 Bartley, Elias Hudson |
| 1919 Aschner, Paul W. | *1889 Barton, Joshua L. |
| 1900 Ashley, Dexter D. | 1899 Baruch, Herman B. |
| 1896 Aspell, John | 1909 Basch, Seymour |

* Deceased.

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|---------------------------------|---------------------------|
| 1913 Bass, Murray H. | *1913 Bishop, Ernest S. |
| 1908 Bassler, Anthony | 1893 Bishop, Louis F. |
| 1914 Bastedo, Walter A. | 1903 Bissell, Dougal |
| 1914 Baughman, William H. | 1915 Black, Florence A. |
| 1919 Bauman, Louis | 1910 Blackwell, Hugh B. |
| 1920 Beach, Bennett S. | 1895 Blake, Joseph A. |
| 1918 Bebb, Rose Anne | 1924 Blancard, William |
| 1912 Beehet, Paul E. | 1910 Blank, Marcus I. |
| 1921 Beek, Alfred Charles | 1919 Blatteis, Simon R. |
| 1914 Beek, August Leo | 1896 Blodgett, Frank J. |
| 1911 Beekman, Fenwick | 1899 Bloom, Selina |
| 1905 Beer, Edwin | 1916 Blum, Theodor |
| 1906 Begg, Colin L. | 1913 Blumgart, Leonard |
| 1897 Beleher-Hardy, Sarah
D. | 1916 Blumgarten, Aaron S. |
| 1905 Beling, Christopher C. | 1921 Boas, Ernst P. |
| 1923 Bell, Alfred Lee Loomis | 1918 Bodenheimer, Milton |
| 1904 Bell, George H. | 1924 Boehm, Joseph L. |
| 1897 Bell, J. Finley | 1926 Boenke, Rudolph |
| 1925 Bell, Samuel Dennis | 1926 Boese, William H. |
| 1918 Beller, Abraham J. | 1917 Boettiger, Carl |
| 1926 Benton, Nelson K. | 1925 Bohrer, John V. |
| 1916 Berens, Conrad | 1884 Boldt, Hermann J. |
| 1900 Berg, Albert A. | 1914 Bolling, Richard W. |
| 1890 Berg, Henry W. | 1916 Bonime, Ellis |
| 1923 Bergamini, Herbert M. | 1907 Bookman, Arthur |
| 1902 Berkeley, William N. | 1918 Bookman, Milton R. |
| 1926 Berliner, Milton L. | 1920 Boorstein, Samuel W. |
| 1923 Berne, Luis P. | 1885 Booth, J. Arthur |
| 1924 Bernstein, Max | 1887 Born, Rudolph O. |
| 1917 Berry, Charles White | 1916 Bortone, Frank |
| 1925 Berry, Frank B. | 1915 Bowers, Wesley C. |
| 1920 Bibby, Henry L. | 1916 Boyd, Carlisle S. |
| 1901 Bierhoff, Frederie | *1904 Boyer, Arthur A. |
| 1895 Biggs, George P. | 1925 Boynton, Perry S. |
| 1903 Billings, John S. | 1916 Bradbury, Samuel |
| 1920 Bingham, Anne Tefft | 1907 Bradford, Stella S. |
| 1926 Bingham, Arthur W. | 1914 Bradshaw, William M. |
| | 1918 Brandaleone, Joseph |

* Deceased.

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|----------------------------------|-----------------------------|
| 1888 Brannan, John Winters | 1887 Burch, T. Hamilton |
| 1908 Braun, Alfred | 1910 Burdick, Carl G. |
| 1917 Brennan, Robert E. | 1915 Burk, Samuel B. |
| 1918 Brenner, Edward C. | 1886 Burke, Martin |
| 1919 Brenner, Isidore M. | 1922 Burlingame, C. C. |
| 1924 Brennglass, Joachim | 1920 Burnham, Athel C. |
| 1897 Brettauer, Joseph | 1906 Burnham, Herbert D. |
| 1889 Brewer, George E. | 1908 Burrows, Waters Field |
| 1905 Briekner, Walter M. | 1886 Burt, Stephen Smith |
| 1895 Brien, William M. | 1911 Busby, Archibald H. |
| 1912 Brill, Abraham A. | 1917 Butler, Eustace C. |
| 1926 Broadwin, Isra T. | *1893 Butler, Glentworth R. |
| 1914 Broder, Charles B. | 1920 Butterfield, Paul M. |
| 1904 Brodhead, George L. | 1905 Byard, Dever S. |
| 1921 Brooks, Alexander | 1914 Byrne, Joseph |
| 1904 Brooks, Harlow | 1900 Byrne, Joseph H. |
| 1897 Brouner, Walter B. | 1891 Cabot, John |
| 1922 Brown, Aaron | 1922 Cahill, George F. |
| 1912 Brown, Ethel Doty | 1885 Caillé, Augustus |
| 1895 Brown, James Spencer | 1918 Caldwell, William E. |
| 1901 Brown, Samuel A. | 1920 Calhoun, William C. |
| 1922 Brown, Sanger, 2d. | 1888 Callan, Peter A. |
| 1895 Brown, Willet Stuart | 1914 Callison, James G. |
| 1918 Bruder, Joseph | 1898 Camac, Charles N. B. |
| 1920 Brundage, Walter H. | 1922 Campbell, Ernest A. |
| 1880 Brush, Edward F. | *1902 Campbell, William F. |
| 1904 Bryan, William | 1924 Cannon, A. Benson |
| 1904 Bryant, William Sohler | 1917 Caples, Byron H. |
| 1904 Buehler, Augustus F. | 1918 Carber, Frank H. |
| 1910 Buekmaster, Clarence
W. | 1921 Carlisle, John H. |
| 1909 Buerger, Leo | 1902 Carlisle, Robert J. |
| 1910 Bugbee, Henry G. | 1921 Carlueci, Gaston A. |
| 1874 Bulkley, L. Dunean | 1885 Carman, Albro R. |
| 1879 Bullard, William E. | 1922 Carp, Louis |
| 1907 Bullowa, Jesse G. M. | 1921 Carr, Frank C. |
| 1912 Bumsted, Clarence Van
R. | 1886 Carr, Walter Lester |
| 1926 Burbank, Reginald | 1905 Carter, Herbert S. |
| | 1925 Carter, Rupert F. |
| | 1904 Carter, William W. |

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| 1920 Casamajor, Louis | 1924 Cohen, Harry |
| 1915 Cash, Stanmore L. | 1921 Cohen, Ira |
| 1906 Cassebeer, Henry A. | 1919 Cohen, J. Bernard |
| 1905 Cassell, James Wilson | 1905 Cohen, Martin |
| 1910 Caturani, Michele G. | 1910 Cohn, Alfred E. |
| 1884 Cauldwell, Charles M. | 1890 Cohn, Felix |
| 1921 Cave, Henry W. | 1926 Cohn, Sidney |
| 1910 Ceeil, Russell L. | 1891 Cole, Carter S. |
| 1909 Celler, Herbert L. | 1910 Cole, Lewis Gregory |
| 1908 Chace, Arthur F. | 1909 Cole, Rufus I. |
| 1920 Chalmers, Thomas C. | 1915 Coleman, Joseph |
| 1886 Chapin, Henry Dwight | 1904 Coleman, Warren |
| 1920 Chaplin, Hugh | 1925 Coley, Bradley L. |
| 1904 Chard, Marie Louise | 1892 Coley, William B. |
| 1924 Charlton, Herbert R. | 1910 Colie, Edward M., Jr. |
| 1914 Chargin, Louis | 1925 Collings, Clyde W. |
| 1922 Chase, Herbert C. | 1905 Collins, Charles F. |
| 1915 Cherry, Thomas H. | 1898 Collins, Howard D. |
| 1896 Chetwood, Charles H. | 1892 Collins, Joseph |
| 1926 Chickering, Henry T. | 1922 Colp, Ralph |
| 1908 Child, Charles Gardner,
Jr. | 1913 Conley, Walter H. |
| 1924 Chilian, Stephen A. | 1900 Conner, Lewis A. |
| 1905 Chisholm, William A. | 1905 Connors, John F. |
| 1901 Cilley, Arthur H. | 1922 Conrad, Edgar K. |
| 1907 Clark, A. Schuyler | 1908 Cooke, Robert A. |
| 1904 Clark, J. Bayard | 1922 Coonley, Frederick |
| 1896 Clark, L. Pierce | 1923 Cornwall, Leon H. |
| 1922 Clark, Raymond | 1912 Cornwell, Herbert C.
deV. |
| 1901 Clemens, James B. | 1910 Corseaden, James A. |
| 1879 Cleveland, Clement | *1909 Corwin, Arthur S. |
| 1922 Cleveland, Mather | 1898 Corwin, Theodore W. |
| 1894 Coakley, Cornelius G. | 1921 Coryell, Clarence C. |
| 1917 Coca, Arthur F. | 1926 Coughlan, James Fran-
cis |
| 1885 Coe, Henry C. | 1912 Coughlin, John Henry |
| 1917 Cofer, Leland E. | 1922 Courten, Henry C. |
| 1892 Coffin, Lewis A. | 1925 Cowett, Max P. |
| 1891 Coggeshall, Henry | |

* Deceased.

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|------------------------------|----------------------------------|
| 1924 Cowles, Henry Clay | 1926 Debon, Amédée Jos. |
| 1922 Craig, C. Burns | 1920 Decker, John J. |
| 1924 Craig, Stuart L. | 1904 de Forest, Henry P. |
| 1908 Cramp, Walter C. | 1879 De Garmo, William B. |
| 1921 Crampton, C. Ward | 1924 de Graffenried, Anthony F. |
| 1926 Crane, Claude G. | 1900 Delatour, H. Beeckman |
| 1925 Craver, Lloyd F. | 1880 Delavan, D. Bryson |
| 1910 Crigler, Lewis W. | 1902 Demarest, Frederick F. C. |
| 1900 Crispin, Antonio M. | 1918 Deming, Nelson L. |
| 1912 Crohn, Burrill B. | 1890 Dench, Edward B. |
| 1921 Cross, Frank B. | 1908 Denenholz, Aaron |
| 1926 Crump, Armistead C. | 1902 Denig, Rudolf |
| 1922 Cudmore, John H. | 1908 Dennett, Roger H. |
| 1901 Culbert, William L. | 1879 Dennis, Frederic S. |
| 1921 Cunningham, Wm. F. | 1916 Denno, Willard J. |
| 1887 Currier, Charles G. | 1916 Denzer, Bernard S. |
| 1915 Curtin, Thomas H. | 1922 DeSanctis, Adolph George G. |
| 1923 Cussler, Edward | 1915 DeSanctis, Nicholas M. |
| 1904 Cutler, Colman W. | 1917 Detwiller, Albert K. |
| 1892 Cutler, Condict W. | 1918 De Vecchi, Paolo |
| 1923 Cutler, Condict W., Jr. | 1926 Devlin, Joseph A. |
| 1922 Cutter, William D. | 1918 Diamond, Joseph S. |
| 1923 D'Albora, John B. | 1897 Dickinson, Gordon K. |
| 1886 Dana, Charles L. | 1891 Dickinson, Robert L. |
| 1922 Dannreuther, Walter T. | 1915 Dieffenbach, Richard H. |
| 1922 Danzer, Charles S. | 1890 Dillingham, Frederic H. |
| 1908 Danziger, Ernst | 1924 Dineen, Paul A. |
| *1911 Darling, Byron C. | 1917 Diner, Jacob |
| 1904 Darlington, Thomas | 1922 di Palma, Salvatore |
| 1908 Darrach, William | 1906 Ditman, Norman E. |
| 1926 Davidson, Leonard T. | 1884 Dixon, George A. |
| 1924 Davidson, Louis R. | 1906 Dixon, George S. |
| 1899 Davis, A. Edward | 1922 Dodd, Raymond C. |
| 1909 Davis, Asa Barnes | 1887 D'Oench, Frederick E. |
| 1913 Davis, Fellowes, Jr. | 1885 Dold, William E. |
| 1909 Davis, George E. | 1921 Donaldson, Blake F. |
| 1920 Davis, Thomas K. | |
| 1911 Dayton, Hughes | |
| 1922 Dean, Archie L., Jr. | |

* Deceased.

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|-------------------------------|----------------------------|
| 1922 Donnelly, William H. | 1890 Edgar, J. Clifton |
| 1924 Donnet, John V. | 1903 Edgerton, F. Cruger |
| 1920 Doran, William T. | 1921 Edwards, James B. |
| *1904 Dorman, Franklin A. | 1921 Eggers, Carl |
| 1888 Dorning, John | 1915 Eggleston, Cary |
| 1891 Doty, Alvah H. | 1922 Eggston, Andrew A. |
| 1904 Dougherty, Daniel S. | 1891 Einhorn, Max |
| 1905 Douglas, John | 1924 Eisberg, Harry B. |
| 1894 Douglass, H. Beaman | 1906 Eisenberg, Isidore C. |
| 1923 Dourmashkin, Ralph L. | 1904 Eising, Eugene H. |
| 1900 Dow, Edmund LeRoy | 1906 Eliot, Ellsworth, Jr. |
| 1889 Dowd, Charles N. | 1925 Eller, Joseph J. |
| 1923 Dowd, Heman L. | 1921 Elliott, Edward S. |
| 1902 Downes, William A. | 1886 Elliott, George R. |
| 1905 Downey, Martin | 1921 Elmendorf, Ten Eyek |
| 1912 Drake, Bertrand F. | 1897 Elsberg, Charles A. |
| 1911 Draper, George | 1921 Elwyn, Herman |
| 1904 Draper, John W. | 1894 Ely, Albert H. |
| *1918 Druskin, Samuel J. | 1904 Emerson, Haven |
| *1901 Duane, Alexander | 1902 Emerson, Linn |
| 1910 Du Bois, Eugene F. | 1925 Ende, Frank Macbeth |
| 1911 Du Bois, Francis E. | 1913 Engelson, Joseph E. |
| 1919 Du Bois, Phebe Lott | 1911 Epstein, Albert A. |
| 1926 Du Bois, Robert O. | 1908 Epstein, Sigmund |
| 1917 Dudley, Guilford S. | 1910 Erdman, Seward |
| 1899 Duel, Arthur B. | 1892 Erdmann, John F. |
| 1893 Dunham, Theodore | 1916 Evans, Evan M. |
| 1915 Dunning, Henry Sage | 1900 Evans, Samuel M. |
| 1916 Dunning, William M. | 1907 Everitt, Chauneey V. |
| 1921 Dunnington, John H. | 1897 Ewing, James |
| 1916 Durkee, John W. | 1905 Fahnestock, Ernest |
| 1923 Duryea, Chester F. | 1916 Falk, Henry C. |
| 1923 Dwight, Kirby | 1924 Famulener, Lemuel W. |
| 1913 Dwyer, James G. | 1906 Fanoni, Antonio |
| 1898 Eagleton, Wells P. | 1909 Farr, Charles E. |
| 1926 Easton, Charles D. | 1912 Farr, Edgar H. |
| 1921 Echeverria, Frederiek J. | 1914 Farrar, Lilian K. P. |
| 1922 Edelman, Leo | 1910 Farrell, Benjamin P. |
| 1922 Edelman, Moses H. | 1910 Faulkner, E. Ross |

* Deceased.

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|------|--------------------------|-------|-----------------------|
| 1922 | Fauntleroy, Archibald M. | 1916 | Fox, Elsie |
| 1904 | Feinberg, Israel L. | 1880 | Fox, George H. |
| 1922 | Feinblatt, Henry M. | 1904 | Fox, Howard |
| 1923 | Felberbaum, David | 1906 | Frank, Robert T. |
| 1922 | Feldman, Samuel | 1913 | Frankel, Edward, Jr. |
| 1908 | Feldstein, Samuel | 1920 | Fraser, Alexander |
| 1922 | Felsen, Joseph | 1918 | Fraser, John F. |
| 1904 | Ferguson, Jeremiah S. | *1898 | Frauenthal, Henry W. |
| 1907 | Ferguson, Robert H. | 1904 | Frauenthal, Herman C. |
| 1924 | Field, Cyrus W. | 1923 | Freed, Frederick C. |
| 1906 | Field, Frank H. | 1892 | Freeman, Rowland G. |
| 1926 | Fineman, Solomon | 1886 | French, Thomas R. |
| 1922 | Finke, George W. | 1924 | Freudenfall, Benjamin |
| 1920 | Finkelstein, Harry | 1889 | Freudenthal, Wolff |
| 1913 | Finley, Caroline S. | 1926 | Frey, Walter G., Jr. |
| 1908 | Fischer, Hermann | 1886 | Fridenberg, Albert H. |
| 1890 | Fiseher, Louis | 1909 | Fried, Gustav A. |
| 1913 | Fishberg, Maurice | 1918 | Friedman, Emanuel D. |
| 1886 | Fisher, Edward D. | 1908 | Friedman, Gedide A. |
| 1918 | Fisher, Judson C. | 1908 | Friedman, Louis |
| 1893 | Fisk, Arthur Lyman | 1913 | Friesner, Isidore |
| 1909 | Fisk, Eugene L. | 1907 | Frink, Claude A. |
| 1924 | Fiske, Edwin Rodney | 1904 | Frissell, Lewis F. |
| 1895 | Fiske, James Porter | 1919 | Froehlich, Eugene |
| 1896 | Fitch, Allen | 1896 | Frothingham, Richard |
| 1916 | Fitzgerald, Fred J. C. | 1912 | Fuchs, John H. |
| 1920 | Fletcher, Norton DeL. L. | 1888 | Fuhs, Jacob |
| 1905 | Flexner, Simon | 1921 | Fulkerson, Lynn Lyle |
| 1894 | Flint, Austin | 1910 | Funk, Joseph |
| 1909 | Floyd, Rolfe | 1907 | Furniss, Henry Dawson |
| 1922 | Fobes, Joseph H. | 1924 | Gager, Leslie T. |
| 1899 | Foote, Edward M. | 1900 | Gant, Samuel G. |
| 1914 | Forbes, Henry Hall | 1916 | Garbat, Abraham L. |
| 1904 | Ford, William M. | 1926 | Garloek, John H. |
| 1911 | Foster, Nellis B. | 1889 | Garmany, Jasper J. |
| 1919 | Fowler, Robert H. | 1924 | Gates, Frederick L. |
| 1906 | Fowler, Russell S. | 1921 | Gatewood, William L. |
| | | 1914 | Gaudiani, Vincent |
| | | 1926 | Gay, Frederick P. |

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| 1916 Geiringer, David | 1922 Gottesman, Julius |
| 1914 Geist, Samuel H. | 1922 Gottlieb, Charles |
| 1921 Gelber, Charles N. | 1922 Gottlieb, Mark J. |
| 1910 Gerster, John C. A. | 1915 Gould, Everett W. |
| 1901 Gibb, W. Travis | 1923 Graee, Roderick V. |
| 1877 Gibney, Virgil P. | 1905 Grad, Hermann |
| 1893 Gibson, Charles L. | 1908 Graef, Charles |
| 1924 Gibson, Gordon M. | 1907 Graeser, Herman R. A |
| 1894 Gilfillan, W. Whitehead | 1925 Graham, John C. |
| 1906 Gillespie, David H. M. | 1924 Graham, John R. |
| 1921 Gillette, Curtenius | 1910 Grant, John P. |
| 1909 Gilmour, Andrew J. | 1889 Grauer, Frank |
| 1925 Ginsberg, George | 1909 Grausman, Philip M. |
| 1887 Girdner, John H. | 1919 Graves, Gaylord W. |
| 1926 Gitlow, Samuel | 1897 Graves, William B. |
| 1918 Glafke, William H. | 1904 Greeff, J. G. William |
| 1923 Globus, Joseph H. | 1905 Green, Nathan W. |
| 1912 Glogau, Otto | 1925 Greenberg, David |
| 1918 Goeller, Charles J. | 1913 Greene, James S. |
| 1922 Goetseh, Emil | 1926 Greene, Marius |
| 1887 Goffe, J. Riddle | 1891 Greene, Robert H. |
| 1900 Goldan, S. Ormond | 1908 Gregory, Alice |
| 1919 Goldberger, Isidore H. | 1908 Gregory, Menas S. |
| 1922 Goldberger, Lewis A. | 1895 Griffin, Edward H. |
| 1923 Golden, Ross | 1915 Gross, Maurice H. |
| 1891 Goldenberg, Hermann | 1909 Gross, Moritz |
| 1918 Goldstein, Isidore | 1918 Grossman, Morris |
| 1908 Goldwater, Sigismund S. | 1918 Grushlaw, Israel |
| 1922 Gonzales, Thomas A. | 1914 Guile, Hubert V. |
| 1922 Goodfellow, Lillian M. | 1909 Guion, Clarence C. |
| 1913 Goodfriend, Nathan | 1922 Gulliver, Francis D. |
| 1906 Goodhart, S. Philip | 1898 Guttman, John |
| 1899 Goodman, Abraham L. | 1909 Gwathmey, James T. |
| 1903 Goodman, Charles | 1901 Haas, Sidney V. |
| 1924 Goodman, Herman | 1909 Haberman, J. Victor |
| 1908 Goodridge, Frederick C. | 1925 Hajek, Joseph |
| 1906 Goodridge, Malcolm | 1904 Hale, Henry Ewing |
| 1922 Goodwin, Norman C. | 1926 Hall, Fairfax |
| | 1918 Hall, John Mead |

- 1919 Hallett, Frederick S.
 1926 Hallett, G. DeWayne
 1891 Hallock, Silas F.
 1917 Halpern, Julius
 1904 Halsey, Robert H.
 1921 Halsted, Harbeck
 1903 Hamlen, George D.
 1920 Hammond, Robert B.
 1916 Hanford, John Munn
 1914 Hansen, Ejnar
 1921 Harkavy, Joseph
 1904 Harlow, Ellwood
 1913 Harrar, James A.
 1909 Harrigan, Anthony H.
 1904 Harris, E. Eliot
 1918 Harris, Isham Greene
 1921 Harris, Louis I.
 1894 Harris, Thomas J.
 1904 Hart, T. Stuart
 1911 Hartshorn, Winfred M.
 1917 Hartshorne, Isaac
 1901 Hartwell, John A.
 1897 Harvey, Thomas W.
 1918 Hasbrouck, James F.
 1925 Haseltine, Sherwin L.
 1902 Haskin, William H.
 1922 Hatcher, Robert A.
 1897 Haubold, Herman A.
 1923 Hauswirth, Louis
 1895 Hawkes, Forbes
 1922 Hawkins, William H.
 1921 Hawks, Everett M.
 1901 Hayes, William Van V.
 1897 Haynes, Irving S.
 1907 Haynes, Royal S.
 1909 Hays, Harold M.
 1926 Healey, William V.
 1918 Healy, William P.
 1897 Hedges, B. Van Doren
 1900 Hedges, Ellis W.
 1895 Heiman, Henry
 1918 Heine, Joseph
 1890 Heitzmann, Louis
 1918 Held, Isidore W.
 1910 Heller, Isaac M.
 1909 Hellman, Alfred M.
 1926 Henline, Roy Biggs
 1921 Hennessy, James P.
 1908 Hensel, Otto
 1920 Herly, Louis
 1910 Herrick, William W.
 1922 Herriman, Frank R.
 1902 Herrman, Charles
 1919 Hertz, Julius J.
 1904 Herzfeld, Alfred A.
 1911 Herzig, Arthur J.
 1906 Hess, Alfred F.
 1922 Hetrick, Llewellyn E.
 1914 Heyd, Charles Gordon
 1899 Hibbs, Russell A.
 1924 Higgins, William McK.
 1922 Higgins, William M.
 1910 Highman, Walter J.
 1917 Hilkowich, Abe M.
 1903 Hill, Ira L.
 1915 Hill, Miner C.
 *1887 Hillis, Thomas J.
 1914 Hillman, Oliver S.
 1909 Hinkle, Beatrice M.
 1925 Hinton, J. William
 1913 Hirsch, I. Seth
 1921 Hirsh, A. Bern
 1904 Hitzrot, James M.
 1912 Hoagland, Bonn. W.
 1921 Hoch, George F.
 1911 Hogue, Joseph P.

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|---------------------------|-----------------------------|
| 1909 Holden, Frederick C. | 1924 Hunt, Charles Jack |
| 1894 Holden, Ward A. | 1905 Hunt, Edward L. |
| 1920 Holladay, Edwin W. | 1903 Hunt, J. Ramsay |
| 1907 Holland, Arthur L. | 1917 Hunt, Westley M. |
| 1925 Hollander, Edward | 1925 Huppert, Elmer I. |
| 1902 Hollister, Frank C. | 1901 Hurd, Lee M. |
| 1921 Honan, William F. | 1924 Hurd, Ralph A. |
| 1887 Honegger, Oscar P. | 1920 Hutchinson, Abbott T. |
| 1924 Hooker, Henry L. | 1912 Huvelle, Rene H. |
| 1906 Hooker, Ransom S. | 1918 Hyams, Joseph A. |
| 1904 Hopkins, Frank T. | 1882 Hyde, Frederick E. |
| 1926 Hopkins, J. Gardner | 1910 Hyman, Abraham |
| 1918 Horn, James F. | 1924 Hyman, Harold T. |
| 1901 Horn, John | 1903 Hymanson, Abraham |
| 1922 Horn, Walter L. | *1908 Hynes, William Rose |
| 1913 Horowitz, Philip | 1894 Ill, Edward J. |
| 1912 Hotwet, Henry A. | 1900 Illoway, Henry |
| 1923 Hough, Perry B. | 1923 Imboden, Harry M. |
| 1913 Houghton, Harris A. | 1910 Imperatori, Charles J. |
| 1925 Howard, Robert C. | 1918 Ingerman, Sergius M. |
| 1922 Howard, Tasker | 1908 Ippolito, Genaro |
| 1923 Howe, Alexander C. | 1924 Irish, William H. |
| 1919 Howe, Hubert S. | 1922 Irving, George R. |
| 1926 Hoyt, Harold E. | 1913 Irving, Peter |
| *1905 Hubbard, Ernest V. | 1918 Irwin, Frank N. |
| 1896 Hubbard, William N. | 1909 Isaacs, Harry E. |
| 1901 Hubby, Lester M. | 1920 Isham, Mary K. |
| 1885 Huber, Francis | 1915 Ives, Robert F. |
| 1911 Huber, Frederick W. | 1908 Jaches, Leopold |
| 1923 Hubert, Louis | 1924 Jackson, Elmer C. |
| 1919 Huddleson, James H. | 1893 Jackson, Victor Hugo |
| 1919 Huey, Arthur J. | 1926 Jacobsohn, Victor J. |
| 1918 Huffman, Otto V. | 1905 Jacobson, Sidney D. |
| 1916 Hughes, Frederic J. | *1879 Jacobus, Arthur M. |
| 1910 Hülner, Max | 1885 Jacoby, George W. |
| 1888 Hume, William A. | 1904 Jacoby, J. Ralph |
| *1911 Humphries, Henry R. | 1904 Jacger, Charles H. |
| 1916 Humphries, Robert E. | 1910 Jaffin, Abraham E. |

* Deceased.

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|-------------------------------|----------------------------|
| 1916 James, Henry | 1926 Kelley, Charles B. P. |
| 1889 James, Walter B. | 1909 Kellogg, Edward L. |
| 1913 Jareho, Julius | 1879 Kellogg, Theodore H. |
| 1900 Jarecky, Herman | 1920 Kelly, Joseph D. |
| 1905 Jarvis, Nathan S. | 1925 Kemp, Edward J. |
| 1919 Jeck, Howard S. | 1912 Kennedy, Foster |
| 1900 Jelliffe, Smith Ely | 1926 Kennedy, Robert H. |
| 1914 Jellinghaus, C. Frederic | 1914 Kent, James M. |
| 1918 Jenison, Naney | 1904 Kenyon, James H. |
| 1921 Jennings, John E. | 1924 Kenyon, Josephine H. |
| 1926 Jessup, David S. D. | 1905 Keppler, Carl R. |
| 1922 Jessup, Everett C. | 1899 Kerley, Charles G. |
| 1922 Joachim, Henry | 1919 Kerley, James H. |
| 1918 Johnson, Frank E. | 1913 Kernan, John D., Jr. |
| 1910 Johnson, Frederic M. | 1901 Kerrison, Philip D. |
| 1922 Johnson, Kenneth | 1922 Kesehner, Moses |
| 1924 Johnson, Thomas H. | 1909 Kessel, Leo |
| 1918 Jones, David H. | 1915 Key, Ben Witt |
| 1922 Jones, Marvin F. | 1898 Keyes, Edward L. |
| 1909 Jonesoff, Emmanuel | 1919 Keyes, Harold B. |
| 1921 Joseph, Morris | 1912 Kilbane, Edward F. |
| 1904 Judd, Aspinwall | 1895 Kilham, Eleanor B. |
| 1922 Judd, Harold B. | 1920 Kindred, John J. |
| 1910 Kaempfer, Louis G. | 1919 King, Edward A. |
| 1918 Kahn, Alfred | 1915 King, James J. |
| 1912 Kahn, L. Miller | 1920 King, Joseph E. J. |
| *1914 Kahn, Max | 1902 King, Thomas A. |
| 1918 Kahn, Morris H. | 1906 Kingsbury, Jerome |
| 1909 Kaliski, David J. | 1922 Kinloch, Robert E. |
| 1917 Kantor, John L. | 1926 Kirby, Daniel B. |
| 1926 Kaplan, Ira I. | 1918 Kirby, George H. |
| 1910 Kast, Ludwig | 1922 Kirwin, Thomas J. |
| *1876 Katzenbach, William H. | 1923 Klaus, Henry |
| 1922 Kaufman, Louis R. | 1922 Klein, Eugene |
| 1906 Kaufmann, Jacob | 1922 Klein, William |
| 1918 Kearney, James A. | 1914 Kleinberg, Samuel |
| 1909 Keller, Frederick C. | 1923 Klepper, Julius I. |
| 1922 Kelley, Catherine Rose | 1926 Klingenstein, Percy |

* Deceased.

1892 Klotz, Hermann G.	1922 Lasher, Willis W.
1897 Knapp, Arnold H.	1912 Lathrope, George H.
1922 Knapp, Richard E.	1922 Lattin, Berton
1918 Knight, Frank H.	1921 Lau, Frederiek T.
1907 Knipe, William H. W.	1920 Lavandera, Miguel
1897 Knopf, S. Adolphus	1920 Lavell, Thomas E.
1921 Knopf, Saul	1926 La Vigne, Alexander A.
1926 Knox, Leila C.	1917 Lavinder, Claude H.
1909 Koeh, Louis A.	1908 Law, Frederiek M.
1922 Koffler, Emil	1919 Lawrance, Elliot W.
1924 Kohn, Jerome L.	1903 Lawrence, G. Alfred
1898 Koller, Carl	1923 Lawrence, Watson A.
1906 Kopetzky, Samuel J.	1926 Lazarus, Joseph A.
1888 Koplik, Henry	1921 Leahy, Sylvester R.
1904 Kosmak, George W.	1869 Leale, Charles A.
1911 Kovács, Richard	1908 Leale, Medwin
1920 Kraus, Walter M.	1921 Lederer, Max
1923 Krida, Arthur	1897 Lederman, Moses D.
1922 Kross, Isidor	1904 Lee, Burton J.
1917 Krug, Ernest F.	1914 Leo, Johanna B.
1926 Kruskal, Isaac David	1910 Leopold, Jerome S.
1926 Ladd, William S.	1924 L'Episeopo, Joseph B.
1891 Ladin, Louis J.	1902 Leshure, John
1898 La Fetra, Linnaeus E.	1916 L'Esperance, Elise S.
1921 Laidlaw, George F.	1926 Lester, Charles W.
1907 Laighton, Florence M.	1905 Levin, Isaac
1912 Lamb, Albert R.	1919 Levin, Oscar L.
1910 Lambert, Adrian V. S.	1924 Levinson, Bernard
1893 Lambert, Alexander	1922 Levy, Robert L.
1907 Lambert, Frederiek E.	1911 Le Wald, Leon T.
1891 Lambert, Samuel W.	1906 Lewi, Emily
1897 Lambert, Walter E.	1922 Lewis, Raymond W.
1923 Lampe, Herman F.	1897 Lewis, Robert
1918 Landsman, Arthur A.	1908 Lewisohn, Richard
1921 Lange, Louis C.	1911 Lewson, Maximilian.
1922 Langmann, Alfred G.	1918 Lewy, Raphael
1918 Langroek, Edwin G.	1900 Libman, Emanuel
1910 Laporte, George L.	1910 Lieb, Charles C.
1897 Lapowski, Boleslaw	1920 Lieb, Clarence W.

- 1924 Lightstone, Abraham
 1891 Lilienthal, Howard
 1918 Lindeman, Howard E.
 1917 Linder, William
 1926 Lintz, Joseph
 1908 Littell, Elton G.
 1924 Littwin, Charles
 1910 Lloyd, Henry W.
 *1891 Lloyd, Samuel
 1904 Lobenstine, Ralph W.
 1888 Lockwood, George R.
 1917 Loewenstein, Helene
 Correll
 1920 Lombardo, Melchiorre
 1914 Loug, William B.
 1919 Lopez, Jose A.
 1926 Loré, John M.
 1917 Losee, Joseph R.
 1926 Losey, Ray R.
 1905 Loughran, Robert L.
 1919 Love, Andrew J.
 1911 Lovell, Frederick S.
 1916 Lowsley, Oswald S.
 1904 Luekett, William H.
 1922 Lueus, Thomas D'Arey
 1910 Ludlum, Walter D.
 1924 Luippold, Eugene J.
 1904 Lumbard, Joseph E.
 1898 Lusk, William C.
 1905 Lyle, Henry H. M.
 1908 Lyle, William G.
 *1904 Lyman, Francis R.
 1898 Lynch, John B.
 1926 Lyon, Edward C., Jr.
 1922 Lyttle, John D.
 1895 MeAlpin, David H.
 1916 MeAlpin, Kenneth R.
 1901 McAuliffe, George B.
 1903 McBarron, John D.
 1918 McCabe, John
 1922 McCafferty, Lawrence
 K.
 1909 McCarthy, Joseph F.
 1907 McCaskey, Donald
 1912 McCastline, William H.
 1899 McCoy, John Charles
 1904 McCoy, John J.
 1905 McCreery, Forbes R.
 1914 McCreery, John A.
 1904 McCullagh, Samuel
 1921 McDannald, Clyde E.
 *1904 MacDonald, Carlos F.
 1902 McDonald, Dennis J.
 1887 Maedonald, George A.
 1914 MaeEvitt, John C.
 1922 McGrath, John F.
 1903 McGrath, John J.
 1904 MaeGuire, Constantine
 J.
 1919 MaeGuire, Constantine
 J., Jr.
 1922 MaeGuire, Daniel P.
 1897 MacHale, Ferdinand S.
 1920 MeHenry, Junius H.
 1925 McIntosh, Rustin
 1908 MaeKee, George M.
 1921 McKendree, Charles A.
 1920 McKenna, William F.
 1904 Mackenty, John E.
 1920 Maekenzie, George M.
 1894 McKernon, James F.
 1900 MeLaughlin, Geo. E.
 1913 McLean, Stafford
 1911 Macleod, William P.
 1920 MacNeal, Ward J.
 1917 McNeill, Walter H., Jr.
 1910 MacNevin, Malcolm G.
 1888 McNutt, Sarah J.

- 1905 MacPhee, John J.
 1908 Macpherson, Duncan
 1909 McPherson, Ross
 1924 MacRobert, Russell G.
 1920 McSweeney, Edward S.
 *1901 McWilliams, Clarence
 A.
 1894 Mabbott, J. Milton
 1920 Maddren, William H.
 1923 Magid, Maurice O.
 1913 Malcolm, Percy E. D.
 1905 Mallett, George H.
 1920 Maloney, Edward R.
 1914 Maloney, William J.
 M. A.
 1914 Mandel, Arthur R.
 *1904 Mandlebaum, Frederick
 S.
 1892 Manges, Morris
 1925 Mannheim, Sigmund
 1917 Manley, Herbert D.
 1923 Mann, Hubert
 1897 Mann, John
 1904 Mannheimer, George
 1913 Manning, G. Randolph
 1920 Mareus, Leopold
 1921 Marine, David
 1913 Marsh, Elias J.
 1921 Marshall, Samuel A.
 1911 Martin, Thomas A.
 1906 Martin, Walton
 1918 Mason, Frederic S.
 1909 Mason, Howard H.
 1882 Mason, Lewis D.
 1904 Mathews, Francis S.
 1909 Matthews, Frank C.
 1924 Matthews, Frederick J.
 1886 May, Charles H.
 1907 May, William Ropes
 1918 Maybaum, J. L.
 1892 Mayer, Emil
 1918 Mayer, Leo
 1904 Meara, Frank S.
 1905 Meding, Charles B.
 1916 Meeker, Harold D.
 1922 Meichner, Frederick H.,
 Jr.
 1900 Meierhoff, Edward L.
 1918 Mencken, Harry P.
 1920 Merriman, M. Hemin-
 way
 1924 Merritt, Katherine K.
 1902 Mersereau, William J.
 1926 Messing, Arnold
 1885 Meyer, Alfred
 1925 Meyer, Herbert Willy
 1906 Meyer, Leo B.
 1887 Meyer, Willy
 1921 Meynen, George K.
 1907 Michaelis, Alfred
 1904 Michailovsky, Michael
 1912 Michel, Leo L.
 1918 Milbank, Samuel
 1906 Miller, Frank E.
 1920 Miller, Heymen R.
 1904 Miller, James Alexander
 1906 Milliken, Seth M.
 1901 Mills, Jackson M.
 1924 Mills, Nathaniel
 1919 Miner, Donald
 1917 Mitchell, Charles R.
 1925 Mitchell, Wendell
 1910 Mittendorf, Alfred D.
 1916 Mixsell, Harold R.

* Deceased.

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| 1926 Moench, Gerard L. | 1925 Myers, Lotta Wright |
| 1922 Moffat, Barclay W. | 1926 Myerson, Mervin C. |
| *1891 Moffat, Henry | 1889 Myles, Robert C. |
| 1913 Moffett, Rudolph D. | *1884 Nammack, Charles E. |
| 1918 Moitrier, William, Jr. | 1903 Napier, Charles D. |
| 1899 Monaclessor, Adolph | 1903 Nathan, Philip W. |
| 1924 Montague, Joseph F. | 1921 Neal, Josephine B. |
| 1904 Mooney, Henry W. | 1923 Neer, Edmonde DeWitt |
| 1909 Moore, Albertus A. | 1902 Neer, William |
| 1904 Moorhead, John J. | 1922 Neergaard, Arthur E. |
| 1922 Morrill, Ashley B. | 1916 Nelson, Aaron |
| 1912 Morris, Dudley H. | 1909 Neuhoof, Harold |
| 1923 Morris, John H. | 1918 Neustaedter, Marcus |
| 1890 Morris, Lewis R. | 1908 Newman, Emanuel D. |
| 1891 Morris, Robert T. | 1922 Ney, K. Winfield |
| 1925 Morrissey, John H. | 1908 Niles, Walter L. |
| 1916 Morrow, Albert S. | 1918 Nilsen, Arthur |
| 1891 Mortimer, W. Golden | 1886 Nilsen, Jonas R. |
| 1897 Morton, Henry H. | 1917 Nilson, S. John |
| 1910 Morton, Rosalie S. | 1905 Norrie, Van Horne |
| 1900 Moscheowitz, Alexis V. | 1906 Norris, Charles, Jr. |
| 1906 Moscheowitz, Eli | 1886 Northrup, William P. |
| 1907 Mosenthal, Herman O. | 1906 Norton, Nathaniel R. |
| 1919 Masler, Fred H. | 1897 Noyes, William B. |
| 1924 Moss, Abraham | 1908 Nutt, John J. |
| 1908 Moss, L. Howard | 1912 Oastler, Frank R. |
| 1916 Mott, Walter W. | 1918 Oberndorf, Clarence P. |
| 1913 Mount, Walter B. | 1910 Ochs, Benjamin F. |
| 1909 Mulholland, Joseph A. | 1885 Offenbach, Robert |
| 1918 Munn, Aristine P. | 1904 Ogilvy, Charles |
| 1882 Mum, John P. | 1906 Oppenheimer, Bernard
S. |
| 1892 Munroe, George E. | 1912 Oppenheimer, Edgar D. |
| 1910 Murphy, Deas | 1907 Oppenheimer, Seymour |
| 1906 Murray, Archibald | 1910 Orgel, David H. |
| 1922 Murray, Clay Ray | 1904 Osgood, Alfred T. |
| 1889 Murray, Francis W. | 1908 Osgood, Charles |
| 1924 Myers, Florizel deL. | 1918 Osnato, Michael |
| 1905 Myers, Howard G. | |

* Deceased.

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| 1911 Ottenberg, Reuben | 1919 Pellini, Emil J. |
| 1908 Oulman, Ludwig | 1923 Penfield, Wilder G. |
| 1909 Packard, Maurice | 1926 Pennoyer, Grant P. |
| 1913 Packer, Flavius | 1922 Perkins, C. Winfield |
| 1906 Page, John R. | 1917 Perrone, Ettore |
| 1919 Painter, Henry McL. | 1905 Peterson, Edward W. |
| 1921 Palefski, Israel O. | 1888 Peterson, Frederick |
| 1921 Palmer, Arthur | 1922 Pfeiffer, William |
| 1922 Palmer, Walter W. | 1912 Phelps, Gouverneur M. |
| 1915 Pappenheimer, Alwin
M. | 1921 Philips, Carlin |
| 1923 Pardee, Harold E. B. | 1922 Philips, Herman B. |
| 1923 Pardee, Irving H. | 1886 Phillips, Wendell C. |
| 1892 Park, William H. | 1922 Phillips, W. Gray |
| 1921 Parker, Jason S. | 1922 Piekhardt, Otto C. |
| 1906 Parker, Ransom J. | 1923 Pierson, Richard N. |
| 1906 Parodi, Teofilo | 1904 Pinkham, Edward W. |
| 1908 Parounagian, Mihran
B. | 1910 Pisko, Edward |
| 1894 Parry, Angenette | 1926 Platt, Anna |
| 1922 Parsons, William B.,
Jr. | 1911 Plummer, Harry E. |
| 1878 Partridge, Edward L. | 1895 Polak, John O. |
| 1911 Paseal, Henry S. | 1920 Poll, Daniel |
| 1904 Patterson, Henry S. | 1924 Pollak, Alfred W. |
| *1894 Payne, S. McAllister | 1891 Pollitzer, Sigmund |
| 1926 Pearlstein, Frank | 1919 Pond, Erasmus A. |
| 1915 Pearson, Charles E. | 1904 Pool, Eugene H. |
| 1910 Pearson, Henry | *1891 Porter, William H. |
| 1910 Pease, Herbert D. | 1924 Potter, Philip C. |
| 1913 Pease, Marshall C., Jr. | 1913 Pou, Robert E. |
| 1898 Peck, Charles H. | 1922 Price, Joseph |
| *1905 Peck, Geo. A. | 1893 Pritchard, William B. |
| 1886 Peckham-Murray,
Grace | 1907 Proctor, James W. |
| 1898 Pedersen, James | 1905 Prout, Thomas P. |
| 1904 Pedersen, Victor C. | 1894 Pulley, William J. |
| 1895 Peet, Edward W. | 1915 Pumyea, Peter C. |
| 1923 Peightal, Thomas C. | 1926 Purdy, Sylvanus |
| | 1902 Putnam, Charles R. L. |
| | 1926 Putnam, Mary |
| | 1922 Pyle, Edwin |
| | 1920 Pyle, Wallace |

* Deceased.

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| 1915 Sharpe, Norman | 1893 Sondern, Frederic E. |
| 1914 Sharpe, William | 1925 Sonnenschein, Harry D. |
| 1920 Shattuek, Howard F. | 1910 Soresi, Angelo L. |
| 1905 Shearer, Leander H. | 1924 Soule, William L. |
| 1918 Sheehan, J. Eastman | 1902 Sour, Bernard |
| 1907 Sheffield, Herman B. | 1894 Southworth, Thomas S. |
| 1905 Shelby, Edmund P. | 1922 Sovak, Francis W. |
| 1909 Shenier, Leo H. | 1921 Spaulding, Edith |
| 1909 Sherman, Elbert S. | Rogers |
| 1910 Shine, Francis W. | 1917 Spaulding, Harry |
| 1918 Shlenker, Milton A. | Van N. |
| 1924 Shufelt, William A. | 1918 Spenceer, Henry J. |
| 1904 Shultz, Peter David | 1910 Spickers, William |
| 1904 Sieard, Montgomery H. | 1920 Spiegel, Leo |
| 1880 Silver, Henry Mann | 1923 Spielberg, William |
| 1893 Silver, Lewis Mann | 1922 Spies, Edwin A. |
| 1920 Sinnott, Joseph J. | 1896 Squibb, Edward H. |
| 1921 Siris, Irwin E. | 1901 Squier, J. Bentley |
| 1912 Sittenfield, Maurice J. | 1922 Stark, Jesse B. |
| 1921 Skinner, Clarence E. | 1912 Stark, Meyer M. |
| 1922 Slattery, George N. | 1910 Stark, Morris |
| 1923 Smith, Alan DeForest | 1885 Starr, M. Allen |
| 1917 Smith, Charles A. | 1889 Stearns, Henry S. |
| 1914 Smith, Charles Hendee | 1880 Stedman, Thomas L. |
| 1916 Smith, Clarence H. | 1908 Steel, George Edwin |
| 1924 Smith, Ellsworth J. | 1904 Steese, Edwin S. |
| 1902 Smith, Ernest Ellsworth | 1922 Steffen, Walter C. A. |
| 1901 Smith, Harmon | 1908 Stein, Arthur |
| 1918 Smith, J. Morrissett | 1909 Stein, Sydney A. |
| 1924 Smith, James W. | 1918 Steinach, William |
| 1919 Smith, Martin De F. | 1925 Steiner, Joseph M. |
| 1916 Smith, Morris K. | 1899 Stella, Antonio |
| 1924 Smith, Thayer Adams | 1904 Stephens, Franklin M. |
| 1923 Sneed, William L. | 1924 Stephens, Richmond |
| 1918 Snow, William F. | 1917 Stephenson, Junius W. |
| 1923 Snyder, Orlow C. | 1925 Stepita, C. Travers |
| 1913 Snyder, R. Garfield | 1905 Stern, Abram Richard |
| 1904 Solley, Fred P. | 1917 Stern, Adolph |
| 1905 Solley, John B., Jr. | 1908 Stern, Arthur |

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| 1910 Stern, Maximilian | 1889 Swift, Edwin E. |
| 1919 Stetson, Rufus E. | 1916 Swift, Homer F. |
| 1907 Stetten, De Witt | 1926 Symmers, Douglas |
| 1909 Stevens, Alex. Raymond | 1888 Syms, Parker |
| 1919 Stevens, Charles W. | 1901 Synnott, Martin J. |
| 1916 Stevenson, George | *1906 Talmey, Bernard S. |
| 1922 Stevenson, Holland N. | 1904 Taylor, Alfred S. |
| 1895 Stewart, George David | 1922 Taylor, Charles G. |
| 1918 Stewart, John D. | 1921 Taylor, Fenton |
| 1912 Stewart, William H. | 1901 Taylor, Fielding L. |
| 1911 Stillman, Alfred, 2d. | 1898 Taylor, Howard C. |
| 1923 Stillman, Edgar | 1917 Taylor, Joseph C. |
| 1918 Stillman, Ernest G. | 1920 Taylor, Kenneth |
| 1911 Stillman, Ralph G. | *1904 Taylor, Thomas M. |
| 1896 Stillwell, John E. | 1925 Tenney, Charles F. |
| 1887 Stimson, Charles W. | 1897 Terriber, Joseph F. |
| 1921 Stimson, Philip M. | 1918 Terry, Ira B., Jr. |
| 1922 Stivelman, Barnet P. | 1894 Teschner, Jacob |
| 1917 Stokes, Charles F. | 1911 Thacher, Henry C. |
| 1898 Stone, William S. | 1910 Theobald, Carl |
| 1920 Stookey, Byron P. | 1890 Thomas, Allen M. |
| 1909 Storey, Thomas A. | 1924 Thomas, Joseph S. |
| 1924 Stout, Arthur Purdy | 1904 Thomas, William S. |
| 1919 Stowell, David D. | 1926 Thomasson, Aaron |
| 1890 Stowell, William L. | Hood |
| 1918 Strachstein, Abraham | 1904 Thompson, Hugh C. |
| 1904 Strang, Walter W. | 1885 Thompson, W. Gilman |
| 1908 Strauss, Israel | 1906 Thomson, Edgar S. |
| 1913 Strobell, Charles W. | 1907 Thomson, John J. |
| 1917 Strong, Samuel M. | 1908 Thorne, Victor C. |
| 1887 Stubenbord, William | 1922 Thornley, Josiah P. |
| 1908 Sturges, Leigh F. | 1916 Throne, Binford |
| 1901 Sturmdorf, Arnold | *1904 Thurber, Samuel W. |
| 1919 Sturtevant, Mills | 1910 Tieck, Gustav J. E. |
| 1912 Sullivan, Raymond P. | 1915 Tilney, Frederick |
| 1902 Sumner, Albert E. | 1901 Tilton, Benjamin T. |
| 1909 Sutherland, Fred B. | 1906 Timme, Walter |
| 1908 Sweeny, Thompson | |

* Deceased.

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| 1906 Titus, Edward C. | 1924 Vier, Henry John |
| 1913 Titus, Henry W. | 1916 Vietor, John A. |
| 1921 Titus, Norman E. | 1890 Vineberg, Hiram N. |
| 1922 Tobin, Thomas J. | 1922 Vinton, Cadwallader C. |
| 1909 Tompkins, Walstein M. | 1914 Virden, John E. |
| 1891 Torek, Franz J. A. | 1913 Vogel, Karl M. |
| 1926 Touart, Maximin De M. | 1908 Vogeler, William J. |
| 1895 Tousey, Sinclair | 1903 Voislowsky, Antonie P. |
| 1908 Tovey, David W. | 1924 von Deesten, Henry T. |
| 1902 Townsend, Terry M. | 1923 von Lackum, Herman |
| 1902 Tracy, Ira Otis | LeRoy |
| 1925 Traub, Eugene F. | 1925 Von Sholly, Anna Irene |
| 1907 Travell, J. Willard | 1921 Voorhees, Irving W. |
| 1917 Truesdell, Edward D. | 1902 Voorhees, James D. |
| 1913 Turek, Fenton B. | 1908 Vosburgh, Arthur S. |
| 1906 Turnure, Percy R. | 1910 Wachsmann, Siegfried |
| 1911 Tweddell, Francis | 1920 Wadhams, Robert P. |
| 1897 Twinch, Sidney A. | 1913 Waldron, Louis V. |
| 1919 Tyson, Cornelius J. | 1893 Walker, John B. |
| 1890 Tyson, Henry H. | 1903 Wallace, Charlton |
| 1917 Unger, Arthur S. | 1904 Wallace, George B. |
| 1924 Unger, James Samuel | 1904 Wallace, Henry |
| 1918 Unger, Max | 1908 Waller, Newton B. |
| 1920 Urquhart, Howard D. | 1907 Wallhauser, Henry J. |
| 1912 Valentine, Julius J. | F. |
| 1910 van Beuren, Frederick | 1910 Wallin, Mathilda K. |
| T., Jr. | 1904 Walsh, James J. |
| 1906 Van Cott, Joshua M. | 1920 Walsh, Robert E. |
| 1919 Vandegrift, George W. | 1904 Walsh, Simon J. |
| 1924 Van Derwerker, Earl E. | 1891 Walter, Josephine |
| 1922 Van Etten, Nathan B. | 1919 Walter, Milton R. |
| 1920 Van Etten, Royal C. | 1920 Walzer, Abraham |
| 1906 Van Ingen, Philip | 1904 Wandless, Henry W. |
| 1906 Van Wagenen, Corne- | 1901 Ward, Freeman F. |
| lius D. | 1895 Ward, George Gray |
| 1908 Vaughan, Harold S. | 1910 Ward, George H. |
| 1915 Vaughan, John C. | 1926 Ward, Joseph Francis |
| 1917 Vedder, Harmon A. | 1908 Ward, Wilbur |
| 1926 Verplanck, Van Noyes | 1901 Ware, Martin W. |

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| 1914 Warren, Luther F. | 1883 Wiener, Richard G. |
| 1897 Warsaw, M. Claudius | 1908 Wiener, Solomon |
| 1925 Washburn, Arthur L. | 1918 Wiggers, August F. A. |
| 1921 Washton, Jacob | 1918 Wight, Jarvis S. |
| 1895 Waterman, James S. | 1905 Wightman, Orrin S. |
| 1920 Watson, Cassius H. | 1907 Wilcox, Herbert B. |
| 1921 Webster, David H. | 1914 Wilensky, Abraham O. |
| 1919 Wechsler, Israel S. | 1922 Willard, Luvia |
| 1886 Weeks, John E. | Margaret |
| 1920 Weeks, Webb W. | 1893 Willard, Thomas H. |
| 1910 Weidler, Walter B. | 1901 Williams, Anna W. |
| 1925 Weigel, Elmer P. | 1903 Williams, Charles M. |
| 1922 Weil, Henry L. | 1918 Williams, Frankwood |
| 1908 Weinberger, William | E. |
| 1910 Weingarten, Frederiek | 1916 Williams, Horatio B. |
| S. | 1904 Williams, Linsly R. |
| 1912 Weinstein, Harris | 1886 Williams, Mark H. |
| 1880 Weir, Robert F. | 1923 Williams, Percy H. |
| 1917 Weiss, Ludwig | 1905 Williams, William R. |
| 1906 Welch, John E. | 1918 Williamson, Hervey C. |
| 1909 Welker, Franklin | 1905 Wilner, Anna S. |
| 1894 Welt-Kakels, Sara | 1918 Wilson, Arthur S. |
| 1914 Wessler, Harry | 1900 Wilson, Frederie N. |
| 1916 West, Davenport | 1920 Wilson, John E. |
| 1897 West, James N. | 1917 Wilson, May G. |
| 1911 Wheeler, John M. | 1895 Wilson, Norton L. |
| 1926 Wheelwright, Joseph S. | *1906 Wilson, Robert J. |
| 1915 Whipple, Allen O. | 1921 Wilson, William A. |
| 1915 Whitbeck, Brainerd H. | 1914 Wing, Lucius A. |
| 1911 White, Francis W. | 1909 Wise, Fred |
| 1920 White, James W. | 1924 Witt, Dan Hiter |
| 1882 White, John Blake | 1922 Wolf, Charles |
| 1920 White, William C. | 1922 Wolf, George D. |
| 1906 Whiting, Frederick | 1912 Wolf, Heinrich Franz |
| 1920 Whitman, Armitage | 1899 Wolff, Julius |
| 1891 Whitman, Royal | 1901 Wollstein, Martha |
| 1904 Wiener, Alfred | 1911 Wood, Francis C. |
| 1914 Wiener, Herbert J. | 1924 Wood, Thomas D. |
| 1900 Wiener, Joseph | 1908 Woodman, John |

* Deceased.

1910	Woodruff, I. Ogden	1889	Wylie, Robert H.
1917	Woodruff, Stanley R.	1924	Wynne, Shirley W.
1904	Woolley, Seudder J.	1904	Yankauer, Sidney
1891	Woolsey, George	1908	Yoemans, Frank C.
1896	Wootton, Herbert W.	1921	de Yoanna, Gaetano
1917	Worcester, James N.	1908	Zabriskie, Edwin G.
1917	Wright, Arthur M.	1921	Zadek, Isadore
1926	Wurtzel, George L.	1913	Zingher, Abraham
1918	Wyekoff, John H.	1909	Zipser, Jacques E.
1910	Wyeth, George A.		

NON-RESIDENT FELLOWS

1923	Aekerman, James F., Asbury Park, N. J.
1906	Adler, Herman M., Chicago, Ill.
1903	Adriance, Vanderpoel, Williamstown, Mass.
1922	Aikman, John, Rochester, N. Y.
1919	Allen, Henry W., Ridgefield, Conn.
1919	Allen, Henry Willard, Ridgefield, Conn.
1898	Alling, Arthur N., New Haven, Conn.
1911	Almgren-Dederer, Ebba E., Oneonta, N. Y.
1907	Amesse, John W., Denver, Colo.
1884	Andrews, Joseph A., Santa Barbara, Cal.
1888	Armstrong, Samuel T., Katonah, N. Y.
1906	Arnold, Ernst H., New Haven, Conn.
1908	Avery, John Waite, Hollywood, Cal.
1882	Baeon, Gorham, Yarmouthport, Mass.
1904	Baker, Sara Josephine, Stamford, Conn.
1916	Baldwin, Edward R., Saranae Lake, N. Y.
1926	Barker, Creighton, New Haven, Conn.
1906	Barnum, Merritt W., Ossining, N. Y.
1924	Barr, David P., St. Louis, Mo.
1915	Bartholomew, Henry S., Napanoeh, Ulster Co., N. Y.
1921	Benson, Arthur W., Troy, N. Y.
1900	Biekham, Warren S., Washington, D. C.
1908	Blaek, John Fielding, White Plains, N. Y.
1920	Blaisdell, Russell E., Kings Park, L. I., N. Y.
1918	Blake, Eugene M., New Haven, Conn.
1924	Blosser, Roy, Providence, R. I.
1908	Blumer, George, New Haven, Conn.

- 1919 Bonnell, Clarence H., Rye, N. Y.
- 1897 Booth, Burton S., Troy, N. Y.
- 1896 Boyd, John C., Washington, D. C.
- 1900 Brooks, Frank T., Greenwich, Conn.
- 1907 Brown, David Chester, Danbury, Conn.
- 1915 Brown. Lawrason, Saranae Lake, N. Y.
- 1905 Brownlee, Harris F., Danbury, Conn.
- 1897 Bull, Edward L., Ithaca, N. Y.
- 1897 Calf, Jeremiah F., Middletown, Conn.
- 1890 Campbell, Archibald M., Mt. Vernon, N. Y.
- 1904 Canfield, R. Bishop, Ann Arbor, Mich.
- 1908 Carter, C. Edgerton, Los Angeles, Cal.
- 1909 Castelli, Alfonso, Dongan Hills, S. I., N. Y.
- 1923 Cavanaugh, Thomas E., Springfield, Mass.
- 1895 Chambers, Talbot R., Hamilton, Bermuda.
- 1906 Chapman, Charles F., Mt. Kisco, N. Y.
- 1912 Chapman, Sophia U., Oswego, N. Y.
- 1911 Chittenden, Arthur S., Binghamton, N. Y.
- 1925 Christensen, Frederiek C., Racine, Wis.
- 1911 Clock, Ralph O., Pearl River, N. Y.
- 1897 Comstock, George F., Saratoga Springs, N. Y.
- 1907 Conoway, Walt P., Atlantic City, N. J.
- 1904 Connell, Karl, Omaha, Neb.
- 1920 Corbusier, Harold D., Plainfield, N. J.
- 1906 Curry, Grove P. M., Mt. Kisco, N. Y.
- 1910 Davison, Wesley T., Victoria, B. C.
- 1911 Day, Fessenden L., Bridgeport, Conn.
- 1911 Derby, Richard, Oyster Bay, L. I., N. Y.
- 1916 De Vausney, Winfield, Newark, N. J.
- 1904 Divine, Alice, Ellenville, N. Y.
- 1895 Dobson, William G., Poughkeepsie, N. Y.
- 1926 Dowling, J. Ivimey, Albany, N. Y.
- 1921 Durham, Herbert A., Shreveport, La.
- 1924 Dye, John Sinclair, Waterbury, Conn.
- 1917 Eaton, Alvin R., Jr., Elizabeth, N. J.
- 1920 Eaton, Henry Douglas, Los Angeles, Cal.
- 1899 Elliot, George T., Oxford, Me.
- 1906 Estes, William L., South Bethlehem, Pa.
- 1923 Farnell, Frederiek J., Providence, R. I.

- 1885 Farrington, William H., Raubsville, Pa.
- 1891 Ferris, Albert W., Watkins, N. Y.
- 1911 Fitz, George W., Peconic, L. I., N. Y.
- 1912 Fitzgerald, Clara P., Worcester, Mass.
- *1920 Fleischner, Emanuel C., San Francisco, Cal.
- 1919 Flynn, Thomas J., Washington, D. C.
- 1918 Ford, Clyde E., Cleveland, O.
- 1918 Frink, Horace W., Southern Pines, N. C.
- 1889 Fuller, Eugene. Abroad.
- 1913 Garcin, Ramon D., Richmond, Va.
- 1920 Gardner, Charles W., Bridgeport, Conn.
- 1922 Garvin, William C., Binghamton, N. Y.
- 1915 Getty, Samuel E., Yonkers, N. Y.
- 1922 Glazebrook, Francis H., Morristown, N. J.
- 1896 Godfrey, Charles C., Bridgeport, Conn.
- 1916 Gordinier, Hermon C., Troy, N. Y.
- 1881 Gorton, Orren A., Sherburne, N. Y.
- 1890 Greene, William F., Winchester, Va.
- 1908 Greenway, James C., New Haven, Conn.
- 1901 Griffith, Frederic, Philadelphia, Pa.
- 1908 Güntzer, John H., Port Chester, N. Y.
- 1896 Hallock, Frank K., Cromwell, Conn.
- 1887 Hance, Irwin H., Lakewood, N. J.
- 1914 Hannock, Elwin W., Albany, N. Y.
- 1919 Hartshorn, Willis E., New Haven, Conn.
- 1921 Harvey, Samuel Clark, New Haven, Conn.
- 1915 Hawley, George W., Bridgeport, Conn.
- 1913 Hebert, Paul Z., Los Angeles, Cal.
- 1921 Heddens, Vernon O., Pasadena, Cal.
- 1910 Henderson, Alfred C., Stamford, Conn.
- 1911 Herring, Robert A., Greensboro, N. C.
- 1915 Hicks, Horace M., Amsterdam, N. Y.
- 1915 Holding, Arthur F., Albany, N. Y.
- *1905 Hotchkiss, Lucius W., Santa Barbara, Cal.
- 1915 Howland, De Ruyter, Stratford, Conn.
- *1904 Howland, John, Baltimore, Md.
- 1906 Howley, Bartholomew M., New Brunswick, N. J.
- 1923 Hutchison, Fred R., Huntingdon, Pa.

- 1903 Hyde, Fritz Carleton, Greenwich, Conn.
- 1911 Jacobson, Frederick C., Newark, N. J.
- 1908 Jameson, James W., Concord, N. H.
- 1912 Jean, George W., Santa Barbara, Cal.
- 1906 Jennings, Walter B., Middletown, Conn.
- 1890 Kammerer, Frederic J., Bern, Switzerland.
- 1906 Kann, Ulysses S., Binghamton, N. Y.
- 1916 Lambert, Robert A., San Juan, P. R.
- 1916 Lane, John E., New Haven, Conn.
- 1926 Lawton, Richard John, Terryville, Conn.
- 1896 Leach, Philip, U. S. N.
- 1910 Leake, James Payton, Washington, D. C.
- 1918 Lee, Edward W., Randolph, N. Y.
- 1926 Leshin, Hiram R., Port Chester, N. Y.
- 1917 Livengood, Horace R., Elizabeth, N. J.
- 1906 Long, Eli, Lakewood, N. J.
- 1912 Longcope, Warfield T., Baltimore, Md.
- 1894 Lowe, Russell W., Ridgefield, Conn.
- 1904 Lynch, Robert J., Bridgeport, Conn.
- 1909 MacCallum, William G., Baltimore, Md.
- 1924 McCann, William S., Rochester, N. Y.
- 1908 McGavock, Edward P., Richmond, Va.
- 1885 McKim, W. Duncan, Washington, D. C.
- 1899 Marvel, Philip I., Atlantic City, N. J.
- 1884 Mendelson, Walter, Philadelphia, Pa.
- 1923 Mendez, Albert A., San Juan, P. R.
- 1919 Mendillo, Anthony J., New Haven, Conn.
- 1926 Metzger, Jeremiah H., Silver City, N. M.
- 1905 Meyer, Adolf, Baltimore, Md.
- 1907 Mial, L. Le May, Morristown, N. J.
- 1900 Miles, Henry S., Bridgeport, Conn.
- 1905 Miller, Ansel I., Brattleboro, Vt.
- 1910 Milne, Lindsay S., Kansas City, Mo.
- 1912 Morgan, William Gerry, Washington, D. C.
- 1921 Morrissey, Michael J., Hartford, Conn.
- 1892 Munger, Carl E., Waterbury, Conn.
- 1904 Nall, Edwin H., Briarcliff Manor, N. Y.
- 1916 Neuman, Leo H., Albany, N. Y.
- 1923 Neumann, Theodore W., Central Valley, N. Y.

- 1902 Nicoll, Matthias, Jr., Albany, N. Y.
 1897 Nisbet, James D., Van Wyck, S. C.
 1913 Ober, George E., Bridgeport, Conn.
 1906 Oertel, Horst, Montreal, Canada.
 1883 Olds, Frank W., Williamstown, Mass.
 1904 Onuf, Bronislaus, Rutherford, N. J.
 1910 Oppenheimer, Frederick G., San Antonio, Texas.
 1897 Orleman-Robinson, Daisy M., Washington, D. C.
 *1871 Packard, Charles W., Stratford, Conn.
 1912 Parker, Edward O., Greenwich, Conn.
 1909 Parry, Eleanor, Huntington, L. I., N. Y.
 1893 Paton, Stewart, Princeton, N. J.
 1920 Patterson, Daniel C., Bridgeport, Conn.
 *1880 Perry, John G., Boston, Mass.
 1924 Phillips, Frank L., New Haven, Conn.
 1896 Pierson, Samuel, Stamford, Conn.
 1898 Pilgrim, Charles W., Central Valley, N. Y.
 1922 Rainey, John J., Troy, N. Y.
 1912 Rayevsky, Charles, Liberty, N. Y.
 1919 Raynor, Mortimer W., Kings Park, L. I., N. Y.
 1909 Reid, George C., Rome, N. Y.
 1905 Riggs, Austen Fox, Stockbridge, Mass.
 1917 Robert, Daniel R., New Lebanon Center, N. Y.
 1925 Roberts, Edward R., Bridgeport, Conn.
 1904 Robertson, Joseph A., Dallas, Texas.
 1920 Robinson, Horace Eddy, Pleasantville, N. Y.
 1924 Rooney, James Francis, Albany, N. Y.
 1894 Root, Edward K., Hartford, Conn.
 1896 Rushmore, Edward C., Tuxedo Park, N. Y.
 1920 Russell, Thomas Hubbard, New Haven, Conn.
 1913 Russell, Worthington S., Woodbury Falls, Orange Co.,
 N. Y.
 1905 Sadlier, James E., Poughkeepsie, N. Y.
 1907 Sauer, J. George, Passagrille, Fla.
 1893 Schauffler, William G., Princeton, N. J.
 1896 Schavior, Frederick, Stamford, Conn.
 1884 Scott, George, Atlantic City, N. J.
 1904 Sharp, Edward A., Buffalo, N. Y.

* Deceased.

- 1926 Sheahan, William L., New Haven, Conn.
- 1919 Sill, Elisha M., Rochester, N. Y.
- 1925 Simpson, Charles A., Washington, D. C.
- 1915 Slocum, Harry B., Long Branch, N. J.
- 1909 Smart, Isabelle T., Brielle, N. J.
- 1914 Smith, Dorland, Bridgeport, Conn.
- 1908 Smith, E. Terry, Hartford, Conn.
- 1905 Smith, Frank Llewellyn, South Egremont, Mass.
- 1909 Smith, George Milton, Waterbury, Conn.
- 1921 Smith, Scott L., Poughkeepsie, N. Y.
- 1902 Smyth, Herbert E., Bridgeport, Conn.
- 1920 Snyder, William H., Newburgh, N. Y.
- 1908 Sorapure, Victor E., London, England.
- 1894 Spence, Daniel B., Morristown, N. J.
- 1914 Sperry, Frederick N., New Haven, Conn.
- 1912 Stevens, Carol T., New Rochelle, N. Y.
- 1915 Stone, Harry Russell, Clinton, Conn.
- 1914 Stoner, George W., Stapleton, S. I., N. Y.
- 1912 Stover, Charles, Amsterdam, N. Y.
- 1907 Stratton, Edward A., Danbury, Conn.
- 1917 Sweet, Charles C., Ossining, N. Y.
- 1920 Taylor, George Herbert, Maplewood, N. J.
- 1918 Terry, Benjamin T., Toledo, O.
- 1914 Thalhimer, William, Milwaukee, Wis.
- 1918 Thoms, Herbert, New Haven, Conn.
- 1911 Tileston, Wilder, New Haven, Conn..
- 1895 Toms, S. W. Speneer, Nyack, N. Y.
- 1924 Tooker, Harold Clifton, Springfield, Mass.
- 1923 Turrell, Guy H., Smithtown Branch, L. I., N. Y.
- 1916 Vander Bogert, Frank, Scheneectady, N. Y.
- 1888 Van Valzah, William W., Santa Barbara, Cal.
- 1902 Van Vranken, Gilbert, Los Angeles, Cal.
- 1896 Victor, Agnes C., Boston, Mass.
- 1905 von Tiling, Johannes H. M. A., Poughkeepsie, N. Y.
- 1907 Wadsworth, Augustus B., Albany, N. Y.
- 1918 Wahlig, Herman G., Sea Cliff, Nassau Co., N. Y.
- 1904 Wainwright, Jonathan M., Seranton, Pa.
- 1889 Waldo, Ralph, Westhampton, N. Y.
- 1904 Walker, Emma E., Rockfall, Conn.

- 1908 Ward, Alfred Wyckoff, Demarest, N. J.
- 1915 Warner, John W., Washington, D. C.
- 1891 Weiss, Julius, San Anselmo, Cal.
- 1921 Wertheimer, Herbert G., Pittsburgh, Pa.
- 1922 West, Theodore Stephen, Portchester, N. Y.
- 1909 White, Davenport, Washington, D. C.
- 1914 Wilson-Prevost, Charles A., Paris, France.
- 1917 Wise, Lester D., Long Branch, N. J.
- 1905 Wolff, Henry A., Pasadena, Cal.
- 1885 Wood, Wm. Benjamin, Tannersville, N. Y.
- 1921 Woodland, Edward E., Pensacola, Fla.
- 1889 Wright, Jonathan, Pleasantville, N. Y.
- 1926 Wyatt, Bernard L., Tucson, Ariz.
- 1924 Wynkoop, Edward J., Syracuse, N. Y.
- 1914 Yocum, Joseph G., Middletown, N. Y.
- 1910 Youmans, Vincent J., Ballston Spa, N. Y.
- 1910 Young, Anna R., Portland, Me.
- 1910 Young, Charles H., Portland, Me.
- 1923 Yudkin, Arthur M., New Haven, Conn.
- 1920 Zinsser, Hans, Boston, Mass.

ASSOCIATE FELLOWS

- 1912 Beard, Stanley Drew, Pearl River, N. Y.
- 1926 Bodecker, Charles F., New York, N. Y.
- 1922 Cooke, Elizabeth, Stamford, Conn.
- 1925 Corwin, E. H. L., New York, N. Y.
- 1910 Davenport, Charles B., Cold Spring Harbor, N. Y.
- 1920 Fine, Morris S., Battle Creek, Mich.
- 1926 Folks, Homer, New York, N. Y.
- 1914 Greenwald, Isidor, New York, N. Y.
- 1911 Harris, Isaac F., Tuckahoe, N. Y.
- 1926 Heft, Hattie Louise, New York, N. Y.
- 1910 Jackson, Holmes C., New York, N. Y.
- 1923 Krasnow, Frances, New York, N. Y.
- 1905 Lee, Frederie S., New York, N. Y.
- 1921 Little, Clarence C., Ann Arbor, Mich.
- 1904 Lusk, Graham, New York, N. Y.
- 1905 Mandel, John A., New York, N. Y.
- 1926 Miller, Edgar Grim, Jr., New York, N. Y.
- 1904 Miller, George N., New York, N. Y.

- 1903 Pratt, John E., Dumont, N. J.
 1923 Myers, Victor C., Iowa City, Iowa.
 1918 Seaman, Emily C., New York, N. Y.
 1920 Sherwin, Carl Paxson, Searsdale, N. Y.
 1904 Soper, George A., Great Neck, N. Y.
 1913 Stockard, Charles R., New York, N. Y.
 1926 Strong, Oliver Smith, New York, N. Y.
 1926 Van Woert, Frank T., New York, N. Y.
 *1902 Wright, John W., Bridgeport, Conn.

HONORARY FELLOWS

- Abel, John Jacob, Se.D., LL.D. Baltimore.
 Archibald, Edward William, M.D. Montreal.
 Barany, Robert, M.D. Upsala, Sweden.
 Bastianelli, Raffaele, M.D. Rome.
 Billings, Frank, M.D., Se.D., D.S.M. Chicago.
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 Celli, Angelo, M.D. Rome.
 Chagas, Carlos. Brazil.
 Cheyne, William Watson, M.D., M.B., C.M., LL.D., D.Se. London.
 Cushing, Harvey W., M.D., Se.D., LL.D., F.R.C.S., D.S.M. Boston.
 de Schweinitz, George E., M.D., LL.D. Philadelphia.
 Doek, George, M.D., Se.D. Pasadena.
 Dumont, Henri, M.D. Havana.
 Finney, John M. T., M.D., F.R.C.S., D.S.M. Baltimore.
 Fournier, Alfred, M.D. Paris.
 Head, Henry, M.D. London.
 Jackson, Chevalier, M.D. Philadelphia.
 Jadassohn, Josef, M.D. Breslau.
 Keen, William Williams, M.D., LL.D., F.R.C.S. Philadelphia.
 Kitasato, S., M.D. Tokio.
 Marie, Pierre, M.D. Paris.
 Martin, Charles James, M.B., D.Se. London.
 Matas, Rudolph, M.D., LL.D., F.A.C.S. New Orleans.
 Moynihan, Sir Berkeley, C.B., M.S., F.R.C.S., Hon. F.A.C.S. Leeds, England.

* Deceased.

Neufeld, Friedrich, M.D. Berlin.
 Newman, Sir George, M.D., D.P.H. London.
 Pavlov, Ivan Petrovic, M.D. Petrograd.
 Putti, Vittorio, M.D. Bologna.
 Ramon y Cajal, Santiago, M.D. Madrid.
 Roux, Pierre-Paul Emile, M.D. Paris.
 Sherrington, Sir Charles S., M.D. Oxford.
 Smith, Theobald, M.D., Sc.D. Princeton.
 Stewart, Ferdinand Campbell, M.D. Florence.
 Thayer, William Sydney, M.D., LL.D., D.S.M. Baltimore.
 Tuffier, Marin T., M.D. Paris.
 Vaughan, Victor Clarence, Ph.D., Sc.D., M.D., LL.D. Ann Arbor.
 von Müller, Friedrich, M.D. Munich.
 Welch, William Henry, A.B., M.D., LL.D. Baltimore.
 Widai, George F. I., M.D. Paris.

BENEFACTORS

*Agnew, Cornelius Rea, M.D., New York.	*Flower, Hon. Roswell P., New York.
Baker, George F., New York.	Ford, James B., New York.
Brown, James M., New York.	*Fowler, Edward Payson, M.D., New York.
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*Dodge, William E., New York.	*Hosack, Alexander E., M.D., New York.
*Draper, William Henry, M.D., New York.	*Hosack, Mrs. Celine B., New York.
*Dubois, Abram, M.D., New York.	*Inslee, S., New York.
*Farnham, Horace Putnam, M.D., New York.	*Jacobi, Abraham, M.D., New York.
Farnham, Mrs. Eliza C., New York.	

* Deceased.

- *James, D. Willis, New York.
- Jenkins, Mrs. Helen Hartley,
New York.
- *Kennedy, John S., New York.
- *Loomis, Alfred Lee, M.D.,
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- *Meyer, Jacob, New York.
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- *Morgan, J. Pierpont, New
York.
- *Purple, Edwin Ruthven, New
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- *Purple, Samuel Smith, M.D.,
New York.
- *Starr, Charles J., New York.
- Starr, M. Allen, M.D., New
York.
- Vanderbilt, Frederiek W.,
New York.
- *Woerishoffer, Mrs. Anna, New
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- *Woerishoffer, Charles F., New
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- *Wood, William H. S., New
York.

* Deceased.

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BACTERIOPHAGY AND THE THEORY OF ULTRA- SCOPIC VIRUSES

When Béchamp, Pasteur's great rival, elucidated his theory of microzymes, he hit upon a view of things for which his own period was not ripe but which may make its fortune later, namely, the concept of an intermediate or transition stage between substance and form. He conceived of microzymes as discrete, particulate organized ferments, arising *de novo* in the tissues and capable of functioning as disease germs or of originating them. But inasmuch as this bizarre notion of the origin of bacteria implies adherence to the old doctrine of spontaneous generation, Pasteur won out all along the line. Béchamp's ideas were submerged in the ensuing general triumph of the bacterial theory of specific infections, and what was really significant in his line of thought was ignored or forgotten.¹ As with the atom in physics, the microbe or disease germ was supposed to be the smallest particle of living matter capable of functioning as an individualized organism. With the bacterial theory of infection, there went the inevitable doctrine of specificity, which was already implicit in the countless disease-demons of the Assyro-Babylonians, and which has never been more clearly stated than in the following prophetic sentences from a letter of Pierre Bretonneau's, written as early as January 7, 1855:

"I repeat then once more: A special germ, proper to each contagion, gives rise to each contagious disease. Epidemic scourges are only engendered or disseminated by their reproductive germs. In all ages, every tongue has affirmed it."²

¹ Ethel D. Hume: Béchamp or Pasteur, Chicago, 1923.

² P. Triaire: Bretonneau et ses Correspondants, Paris, 1892, II, 593.

stereochemistry (say in an unorganized ferment) becomes a biological molecule, *i. e.*, a discrete physical particle, combining with other particles to form a large mass of plasm. Analogues of this hypothetical process have already been discovered in the supposedly inert portion of the dividing cell or ovum, apart from the complex structural changes in the nucleus. The transparent starfish egg is an apparent emulsion consisting of a suspension of spheroids in a clear hyaloplasm, containing at the same time an even larger number of minute dispersed particles, decreasing in size to the limit of microscopic vision, a view of things which Wilson likens to "the telescopic picture of the sky." From clustering and aggregation of these smaller bodies the larger spheroids are eventually formed, so that the alveolar structure of protoplasm is really "of secondary origin."

Filterable viruses may therefore be anything from a fluid, like serpent venom, to an emulsion, a discrete corpuscle of living matter or even some structural arrangement, like the polyhedral viruses of certain plant diseases. All that is known of them is the pronounced cellular reaction they produce, their general toughness or high degree of immunity, the toleration of the pathogenic varieties for concentrated glycerine, and the fact that they can be destroyed by drying and at comparatively low temperatures, in which traits they differ markedly from bacteria and the simpler enzymes. What seems a new line of attack upon this difficult problem has been recently opened up by Dr. S. P. Kramer in his remarkable experiments with bacterial filters in the Hygienic Laboratory of the Public Health Service.⁴

In 1916, Dr. Kramer showed that filters made of siliceous material are permeable to acid aniline dyes, such as Congo red, but impermeable to basic dyes, such as Victoria blue. As the sand, porcelain and other filters used in bacteriology are all made of silica, it follows that what have hitherto been regarded as filterable microorganisms or colloids happen, in reality, to be filterable through silica filters, *i. e.*, through a substance having a negative charge. He defines a filter as a suspension of the material of which the filter is composed in the fluid filtered, which is sound either as thermodynamics or electrostatics. Thus a plaster-of-Paris filter was found to be permeable to Victoria blue and impermeable to Congo red, but if the latter be diluted and acidulated, it will be rendered filterable by reversing its electric charge. The bacteriophage of *staphylococcus aureus* was found to pass through a Berkefeld or silicon (acid or negative) filter but would not pass a gypsum (basic or positive) filter. The same thing is true of *Vibrio percolans*, vaccine virus and rabies virus. Filters of chem-

⁴ S. P. Kramer: *Jour. Gen. Physiol.*, Balt., 1926, IX, 811.

ically pure CaSO_4 were, however, physically permeable to all dyes and viruses. The semipermeable character of the gypsum filter was found to be due to the alkaline CaCO_3 in commercial plaster of Paris. With these and other new filters, Dr. Kramer has made unique experiments on the pathogenic viruses and their chemical analogues, abrin and ricin, shortly to be published.

These experiments indicate that a filterable virus may be, as Twort predicted, a transitional or precellular phase of living matter in which it still behaves as a chemical substance rather than as a physical or structural configuration. What is the significance of these findings from the viewpoint of thermodynamics or physical chemistry?

The theory of osmosis in classical thermodynamics presupposes an ideal diaphragm or membrane between two different gases, liquids or semi-fluids (concentrated solutions), permeable to some components but not to others. In the sound view of Willard Gibbs, the conditions for osmotic equilibrium are that $t' = t''$ and $\mu' = \mu''$, where t' , t'' are the temperatures and μ' , μ'' the chemical potentials of the substances which can pass through the semipermeable membrane. By parity of reasoning, the conditions for osmosis are that either the temperatures of the two substances be unequal (if identical in composition) or that the chemical potentialities of the components which can pass the diaphragm shall be unequal. The chemical potential, (μ' or μ'') was defined by Gibbs as the free (available) energy of the component at constant atmospheric pressure, by Clerk Maxwell as the intensity with which a given component substance tends to expel itself from the compound containing it, and by Sir Joseph Larmor as the mathematical equivalent of the surface energy (marginal available energy) of the given component per unit mass at constant temperature. It is identical with the "fugacity" or "escaping tendency" of Lewis, *i. e.*, "the tendency of every molecular species to escape from the phase in which it is," and is thus the logical opposite ($-\mu$) of the *Haftdruck* (attraction pressure) of Traube,⁵ which represents the tendency of the component to stay put in the compound, *i. e.*, the chemical affinity between component and compound, *e. g.*, the chemical bond between solvent and solute in a solution. But where $\mu' = \mu''$ then $\mu' - \mu'' = \mu' + (-\mu'') = 0$, whence the condition for osmotic equilibrium would be that chemical potentiality and chemical affinity (attraction pressure) remain in a state of balance. Traube maintains that the osmotic current is due to difference in surface tension between the two fluids on either side of the membrane. In Gibbs's view, the current moves in the direction of dissipation or distribution of energy, *i. e.*, from higher to lower chemical potentials. In Traube's view, the fluid with the lower surface tension moves inevitably toward a surface or level

⁵ For a fuller account of Traube's work, see *Science*, N. Y., 1910, n. s., XXXI, 281-286 (author's review).

of higher surface tension, in accordance with the theorem of Gibbs that "all substances lowering the surface tension of their solvent tend to collect at the surface of discontinuity." Both views obviously amount to the same thing. In 1887, this sound view of the push and pull of chemical potency and chemical inertia (affinity) was obscured by the celebrated gas law of van't Hoff ($p v = r t$), which, while true of diffusion (osmosis) of gases, was extended by him to liquids, since it was relatively true of dilute (decinormal) solutions. But as van't Hoff attributed the osmotic current to the impact of dissolved molecules against the intervening semipermeable membrane, he confused the act of osmosis with the resulting hydrostatic (osmotic) pressure, the behavior of gases and dilute solutions with the behavior of more concentrated solutions, and the act of dilution with the act of solution. For nearly two decades, osmosis was treated as a physical rather than a chemical phenomenon, although Lord Kelvin had proclaimed at the start that van't Hoff's gas equation is not a true Carnot cycle.

The upshot of this long controversy in which Lord Kelvin, Fitzgerald, Lothar, Meyer, Armstrong, Mendelejeff, van Laar, Kahlenberg and Raoult were ranged against van't Hoff, Arrhenius and Ostwald, was a new fact of salient importance, viz., that the semipermeable membrane usually exerts a *selective* chemical action upon the substances bathing it, or as Kahlenberg expressed it, the motor power in osmosis is the specific chemical attraction between the liquids used and between these liquids and the septum employed.⁶ But as this attraction depends upon the positive and negative ions in the liquids and the membrane, it is but a step from this generalization to the kind of experiments which Kramer has made with different filters. In 1910,⁷ Professor F. G. Donnan, of the University of London, stressed a particular phase of Gibbs' view of osmosis which Jacques Loeb believed to be the key to the colloidal behavior of protein solutions, viz., that in which two solutions are separated by a membrane which is permeable to all ions except one, i.e., impermeable to one ion only. The validity of Donnan equilibria as criteria of colloidal behavior or turns upon Loeb's proof that "proteins form true ionizable salts with acids and alkalis," and thus obey the laws of classical chemistry.⁸ The fallacy to which Loeb exposed himself, in his reading of the Donnan equilibria, lay (as Armstrong has recently shown), in abandoning his earlier sound view

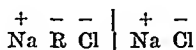
⁶ L. Kahlenberg: *Jour. Phys. Chem.*, Ithaca, N. Y., 1906, X, 208.

⁷ F. G. Donnan: *Ztschr. f. Elektrochem.*, 1911, XVII, 572.

⁸ J. Loeb: *Proteins and the Theory of Colloidal Behavior*. 2. Ed., New York, 1924.

of ions as electrolytes or chemical particles attached to the neutral isoelectric point of a substance, for the Arrhenius view of ions as freely floating electric charges (virtual electrons) in solutions.

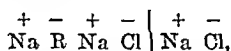
If the membrane is impermeable to the negative ion R of a (protein) salt NaR, with a common salt solution on the other side of the membrane, then some of the NaCl will diffuse through the membrane and the resulting equilibrium will be, in Donnan's view



On the side of the non-diffusible protein NaR, the concentration of the positive sodium ions is the sum of these cations in combination with the anions R and Cl, yet these must balance with the sum of the +Na and -Cl ions on the other side. This is only possible when the sum of the +Na ions on the NaR side is greater than the sum of the +Na ions on the NaCl side and when the sum of the -Cl ions on the NaR side is less than that of the -Cl ions on the NaCl side. Expressed mathematically, the Donnan equilibria require that the products of concentrations of diffusible cations and anions on one side be equal to the concentration product of the same pair

of ions on the other side, i. e., $\frac{C_a}{C_b} = \frac{A_b}{A_a}$ where A and C denote the anions and

cations in the two fluids a and b. In Armstrong's view of "that damned Donnan equilibrium" and indeed, in the earlier view of Loeb himself, the negative Cl in the above diagram cannot pass over to the NaR side except as NaCl, whence we should write



which is what takes place in actuality, viz., the salt really passes over as a whole up to equilibrium. Loeb vitiated his admirable work by pinning his faith to the free-floating ion, a mathematical fiction which "even appears in brewer's advertisements."⁹

If we assume, as *graue Theorie*, that an ultrascopic or filterable virus is a precellular state of substance, acting as a semi-fluid chemical compound rather than as an organized colloidal mass, then something like the above might be conceived as happening in negative reactions of the silica and gypsum filters which Kramer employs. The criterion of purely physical filtration is the neutral CaSO_4 filter, which is physically perme-

⁹ H. E. Armstrong: *Jour. Gen. Physiol.*, Balt., 1926-7, VIII, 654-664, *passim*.

able to dyes, colloids and viruses alike. Size and shape in filtration are of no moment, since one filterable Noguehi *Leptospira* is larger than most microorganisms. The criterion of a living organism is power of reproduction, which as Claude Bernard said, is, in turn, consequent and dependent upon nutrition. At the indefinable border line in the evolution of substance into form, there must be states of substance which have the power of increasing themselves, like the lysins, by power of assimilation. True, this is mere speculation, and most supposedly ultrascopic viruses may turn out to be visible microorganisms. The ultimate nature of life is of course transeendental, beyond our ken, but the thermodynamic criteria afford a very useful check upon some of its chemical and physical aspects. In the words of A. V. Hill,¹⁰ biological science to-day "requires a Joule—a dozen Joules—to carry out the accurate measurements and to formulate the precise definitions which are essential if it is to secure its promotion from the nursery of observation and wonder to the school-room of exact science."

F. H. GARRISON

A SYMPOSIUM ON BACKACHE

FROM THE STANDPOINT OF THE ORTHOPEDIST

NATHANIEL ALLISON
Boston

(Delivered before The New York Academy of Medicine, January 20, 1927.)

The physical complaint known as backache is so common, so variable, and so inclusive in its nature, in its causes, and in its effects, that it is difficult to assemble the facts about backache, to arrange these facts in any kind of order, and to make any useful deductions from what seems to be, for the present at least, a hopeless mass of unclassifiable clinical observations.

Among others, the orthopedic surgeon is thought to be the person who should be able to help the patient with backache. The

¹⁰ A. V. Hill: Thermodynamics in Physiology. Joule Lecture. *Nature*, London, 1924, CXIII, 862.

orthopedic surgeon is credited with possessing not only the requisite knowledge for accurate diagnosis, but also with having at his disposal methods of therapy which bring about rapid and complete recovery. In the attempt to fulfil this obligation there are met many discouraging and difficult obstacles.

In the first place, accuracy in diagnosis is difficult and at times impossible. In the second place, without accurate diagnosis, clinical deductions as to the effect of therapy are uncertain and in many instances valueless and misleading.

It seems feasible to look upon backache from two points of view. First, those backaches which are the result of definite lesions of the bones and articulations of the spine and pelvis. Second, the backaches that have their origin in troubles which have no association with lesions of the bones and joints of the spine or pelvis. The first group belongs to the surgeon, especially to him who is known as an orthopedic surgeon. The neurologic surgeon also has a rôle to play with certain serious backaches. The second group belongs to the general medical man, the gynecologist, the genito-urinary surgeon, the neurologist, and the physiotherapist.

It is not my purpose to bring up all of the various causes of backache, except to indicate that the great majority of backaches mean little beyond a short period of physical unhappiness. That this is true is shown by the widespread use of the porous plaster which feels so good on the back, by the kidney-pills, and by the more or less gentle ministrations of the osteopath and chiropractor. If backache were not a very common human ailment, easily cured, certain it is that much of charlatanism and nostrum vending and manipulative quackery would cease to be profitable.

It is not possible for me to explain why it is that backache is so amenable to what seems to be illogical methods of therapy. The fact remains that it is so.

In this second group of backaches are the so-called lumbagos. This sudden acquisition of a very breathless kind of backache seems to be within the reach of all, indeed, medical men are frequently thus incapacitated—we call it lumbago or myositis. Again, there is the backache associated with renal calculus, and those who have experienced the passage of a stone from kidney

pelvis to bladder may well claim the distinction of knowing what is really backache. The gynecological backaches are well known to those who have them and to those who have to treat them. I have heard it said that the backache of acute infectious disease is hard to bear, and it must be true that the backache associated with parturition is not negligible in quantity or quality; also, there is the tired lame back of industry, and of bad posture associated with pendulous abdomen. These backaches are secondary backaches. There is an infinite variety, and the methods of therapy are multitudinous.

As an orthopedic surgeon, my interest in backache begins when it is more or less evident that the particular backache in question is not of the secondary variety, meaning by this that it depends upon causes lying outside of the muscles, bones, joints, and mechanics of the spine. My interest is quickened when a demonstrable lesion is discoverable. As one interested in medical diagnosis as an essential to proper practice, my interest is engaged by what may well be termed the overlaps of medicine. In other words, it is necessary to seek counsel and give the same in difficulties of differential diagnosis in backache. It is essential that all causes outside of the spine itself and the pelvis itself be estimated.

Having ruled out by examination and careful consultation with others engaged in the overlap—the internist, the gynecologist, the neurologist, and the genito-urinary surgeon—it frequently works out that the individual backache is primary in character and demands the type of surgical treatment which may be given by the orthopedic surgeon.

Before this treatment is undertaken, it is quite essential to know what is the lesion of the spine or pelvis. It may be taken for granted that lesions of the bones, joints, and musculature are what we are seeking to discover in the backache in question.

In brief, the causes are the following:

1. Trauma.
2. Bad attitude.
3. Congenital anomalies.
4. Arthritis, both acute and chronic.
5. Malignant disease.

In brief, the lesions which result from these causes are:

1. Fracture.
2. Sprain.
3. Strain.
4. Bad mechanics.
5. Deformity.
6. Destruction of bone and joint tissue, with abscess formation, and with ankylosis, as results.

It is not always easy to demonstrate definite lesions in the structures of the spinal column and pelvis. On the contrary, most of the backaches elude positive diagnosis, and in consequence, the deductions made as to the etiology are apt to be erroneous. Also, the favorable results of this or that type of treatment often lead to questionable conclusions. Confusion is added by the well-known fact that actual lesions in the spine are signalized by pain elsewhere. For instance, gall-bladders have been inspected when the cause of the pain was tuberculosis of a vertebral body. Stomachs have been opened for the persistent pain arising from malignant disease in the spinal column. The pain and discomfort caused by cervical ribs and cervical arthritis are not felt in the spine but in the distribution of the cervical nerves. This truism is nowhere better shown than in the lesions of the lumbo-sacral junction where pain and discomfort are projected along the nerve trunks of the lumbo-sacral plexus.

It seems that what is needed for the advancement of our insight into the causes and the results in backache is an ever-present realization of the part that the spinal column and the pelvic skeleton may play in the production of the pain either in the regions themselves or in areas distant from the spine, and it seems, also, that this realization is frequently absent in the practice of medicine and surgery.

The backaches and aches in general which fall to the orthopedic surgeon for diagnosis and treatment are, as above stated, due to injury, disease, strain and stress on the spinal structures and the pelvic bones and articulations.

Time will allow me to point out only briefly the significance of spinal fractures, compression fractures, transverse process and spinous process fractures, and the backaches these injuries cause. Diagnosis is made by careful physical examination, and is con-

firmed by positive roentgenographic findings. The same is true of the disease processes in the bones and joints—tuberculosis, syphilis, osteomyelitis, carcinoma and sarcoma.

Time also demands that I hasten by the attractive field wherein lie the congenital anomalies of the spine, as well as the backaches produced by faulty attitude. All of these lesions concern us greatly, but each group would demand for careful study considerable more time than I have at my disposal.

The lumbar spine, the lumbo-sacral junction and the sacro-iliac articulations demand most of my time, because about this region of the spine and its backaches much controversy has recently arisen.

In backache and sciatica it has become the vogue, especially in America, to suspect the sacro-iliac articulations as possible seats of the trouble. In fact, the particular backache which is located in the lower spine, often near the lumbo-sacral junction, demands careful study in order to rule out the question of participation of injury or disease of the sacro-iliac joints as causes of the painful back symptoms. It is only within recent years that the junction of sacrum with the two ilia has been granted a position of clinical significance. It is still open to serious question in many instances, whether an accurate interpretation of physical signs and symptoms is possible when the nature of low-back lesions is to be decided. Certain it is that clinical methods designed to relieve the painful sciatica and low-back discomfort associated with lesions of the sacro-iliac joints have proved themselves successful in many instances. The confusion which exists as to the nature and cause of low-back pain and sciatica arises from lack of definite clinical understanding of the lumbo-sacral junction and the sacro-iliac articulations, and possible misinterpretation of the results of treatment.

A study of roentgenograms in painful backs and sciatica, such as that made by O'Reilley, has not shown a definite clinical picture. On the contrary, it seems that individuality is clearly expressed in the conformity of the lower spinal and pelvic articulations, indeed to such an extent that no two persons have skeletons which are sufficiently similar to allow the type classifications so useful in other regions of the human anatomy.

Painter has recently collected in admirable fashion the anatomical facts which have to do with these articulations. (Painter,

C. F., *Boston Med. & Surg. Jour.*, Apr. 8, 1926). His paper, which he calls "The Menace of the Sacro-Iliac Idea," deals most interestingly with the recent advancement of the notion that fusions of the sacro-iliac joint are demanded in a large and increasing number of these questionable lesions of the sacro-iliac articulations; the menace being the tendency to resort to serious surgical interference in lesions which are not well understood, and which are often relieved or cured by so-called conservative measures, such as protective, rest in bed, and manipulation.

He states his belief about as follows: Granting the fact that a movable sacro-iliac joint exists in the normal individual, this allows us to assume that this joint is subject to such lesions as are the common lot of the other joints of the body. The sudden pain and local tenderness which follow excessive motion or strain in the region of the sacro-iliac articulations justify the belief that these joints may be carried beyond their normal limits of motion and have a resulting *sprain*. The acute sprain may be followed by a chronic arthritis, with which are associated pain and stiffness and local tenderness. Disease processes, notably tuberculosis and pus infections, may localize in these joints producing destructive lesions demonstrable by roentgenograms.

My own experience inclines me to believe that sciatica is one of the cardinal signs of sacro-iliac disorder, and is due to the close proximity of the nerve roots to the sacro-iliac articulations. It seems warrantable to conclude that sciatica, especially when associated with scoliosis of the lumbar spine—the so-called *sciatic scoliosis*—has origin in some definite lesion of the sacro-iliac joint. On the other hand, many lesions of the lumbar spine may cause similar clinical phenomena. The diagnosis of the exact seat of the lesion demands the greatest care and painstaking study.

Too much reliance must not be placed on the X-ray plate in these lesions. Its value lies in the fact that destructive bone lesions are at times demonstrable. The interpretation of abnormalities and variations leads to considerable confusion, as a rule.

It is difficult to estimate the results of various methods of therapy, especially in the treatment of low-back pain and sciatica. The methods used range from rest in bed, with sedatives and hot applications, to ankylosing operations performed on the bones of the articulations. Intermediate types of treatment include for-

cible manipulations, stretchings under anesthesia, and the application of braces and plaster-of-Paris jackets. The results of these methods are sufficiently variable to suggest that treatment as a standard of correct diagnosis is apt to lead to confusion.

In my own experience I have seen instances of protracted disability due to chronic arthritis of the sacro-iliac joints which have failed to respond to any type of conservative treatment, and which finally have been entirely relieved by surgery designed to obliterate these joints, the so-called "fusion" operation. On the other hand, I feel that conservative measures will result in relief from symptoms in the vast majority of cases.

The term "conservative measures" means a variety of things. Manipulation under an anesthetic is regarded as a conservative measure, though I must point out that as it is frequently done it seems far from conservative. The benefit which follows manipulation is due, perhaps, to readjustment of the pelvic articulations, but probably is due largely to the stretching of shortened hamstring muscles.

Lumbo-sacral arthritis will produce much the same clinical picture as does sacro-iliac arthritis, and yields to rest and protection, occasionally to manipulation or operative fusion of the lumbar spine, in about the same percentage of cases as do lesions of the sacro-iliac joints.

A brief summary of the backache question, based upon our experience at the Massachusetts General Hospital, is as follows:

Backache may be due to

1. General debility, mental and physical fatigue.
2. Gynecological and genito-urinary lesions.
3. Neurological lesion—spinal cord tumor, *often overlooked*.
4. Static and postural causes. Body types—a large industrial company refuses to employ for hard labor men over five feet ten inches. The long slender back will not stand the strain of heavy labor. Shortened ham-strings and shortened tendo-Achilles.
5. Partial or complete spondylolisthesis, resulting from bad position and heavy strain or injury.
6. Metabolic, toxic or infectious affection of the muscles, lumbago or myositis.
7. Acute trauma. Strain, sprains; aponeurotic or muscle tears.

8. Fraetures. Transverse and spinous proecesses and eompres-sion fraetures, often overlooked; *also dislocations*.
9. Arthritis: the ankylosing type and the non-ankylosing type.
10. Impinging spinous or transverse proecesses.
11. Congenital variations, especially asymmetrical or saeralized fifth lumbar vertebra.
12. Spina bifida oceulta.
13. Tuberculosis. Syphilis. Typhoid. Osteomyelitis.
14. Neoplasms: sareoma, earcinoma, and non-malignant giant cell tumor. Multiple myeloma.
15. Combinations of any of the above.

A brief summary of the diagnostiic methods necessary to identify these lesions is difficult. It may be said, however, that a eareful examination of the spine is indicated in all types of physical examination, for any purpose whatsoever.

It is not possible to go into the question of treatment except in the most general way. Broadly speaking, treatment of baekaehe requires accurate diagnosis. The great difficulty is to estimate the exaet cause in many instances. Rest in bed is a good form of therapy for many tired baeks. Support by applianees is needed in many; exereise and proper attitude by most. Once in a great while, out of a great number of "*orthopedic*" baekaeches, if you will pardon the term, operative interfeeree is demanded.

FROM THE STANDPOINT OF THE UROLOGIST

J. BENTLEY SQUIER

(Delivered before The New York Academy of Medicine, January 20, 1927)

In presenting the subject of baekaehe from the viewpoint of the Urologist, I shall consider that the term "baekaehe" refers to pain located below the ribs, in the lumbar region and flank, on either side of the vertebral column. Limiting in this manner the area covered by the term baekaehe will not, however, exelude any of the organs which are comprised in the genito-urinary system from being under suspieion as possible baekaehe pro-dueers, for each may be primarily responsible for pain in the region mentioned.

When backache from disease of the genito-urinary tract is not due to primary disturbance in the kidney, it may be produced by secondary disturbance in the kidney, due to a primary disturbance in other of the genito-urinary organs.

Thus are included the kidney, ureters, bladder, urethra, vesicles, vasa, testicles and prostate.

When viscera are the site of an irritative process, there is conducted through the autonomic nerves or sympathetic system the impulses of visceral irritation.

The stimulating effects of these on the cerebrospinal sensory nerves, center in the cord, reflect pain to the peripheral distribution of such nerves, and there is set up a viscerosensory reflex.

The spinal nerves having a more or less constant distribution to the body wall, certain zones are outlined.

Visceral irritation of the kidney is therefore manifest by pain in somewhat distinctive body wall areas.

Kidney pain is of two general types: *true renal pain* located in the flank and lumbar region, of dull aching quality, usually of maximum intensity of constant character and without radiation; *pelvic or ureteral pain* diffusely located from the lumbar region along the iliac crest, of paroxysmal quality, of varying intensity, of intermittent character, with radiation through the inguinal region into the scrotum or rectum or on to the thigh.

Pelvic or ureteral pain does not come within the scope of this paper but true renal pain may be looked upon as the classic backache.

The backache of true renal pain is, therefore, one of dull and constant character never becoming paroxysmal, is less after rest but becoming progressively worse with active locomotion, it may become more acute when patients assume certain positions and they may suffer most when lying upon the side which is not involved.

Active motion exaggerates the pain as in coughing or vomiting, and manipulation of the leg, causing contraction of the iliopsoas muscle, may produce an acute exacerbation.

True renal pain is deep-seated and the patient localizes it as away from the surface of the body; this fact may be of value in differentiating it from the more superficial aches of myalgia or neuralgia.

Associated with true renal pain are certain sensitive areas: in the flank in the axillary line, the costovertebral angle, and on the right side anteriorly, just below the gall bladder at about the level of the renal pelvis.

The production of areas of referred hyperalgesia occurs with intrarenal lesions, while extrarenal lesions, as a rule, produce local pain and absence of referred hyperalgesia.

The majority of affections of the kidney, whether surgical or medical, are in the beginning painless and most of the medical types remain so.

Using Delafield's classification of renal diseases as a basis of comparison (the past forty-five years having produced none better), we find that renal pain or backache is mentioned as a possible symptom in but two out of the eight described pathological types.

The classification is as follows:

1. Acute congestion.
2. Chronic congestion.
3. Acute degeneration.
4. Chronic degeneration.
5. Acute exudative nephritis.
6. Acute productive nephritis.
7. Chronic nephritis with exudation.
8. Chronic nephritis without exudation.

The two types which may produce backache are acute congestion of the kidney, and acute exudative nephritis.

Acute congestion of the kidney may be caused by the injection of poisons, by prolonged overexertion and may follow operation, especially on the genito-urinary tract.

The pathological changes include congestion of the veins, capillaries and glandular tufts of the kidney with exudation of serum and red blood cells.

The swelling of the kidney and increased intracapsular pressure producing sufficient visceral irritation to account for the resulting reflex backache.

The second possible cause of backache in Delafield's grouping is acute exudative nephritis. The inflammation is characterized by congestion, exudation of plasma, emigration of white

blood cells, diapedesis of red blood cells and changes in the renal epithelium and glomeruli. It is an acute inflammation of the kidney following exposure to cold, or complicating an infectious inflammation elsewhere in the body, or an infectious disease such as scarlet fever, etc.

The backache is less severe in this instance than when following acute congestion of the kidney.

Chronic nephritis does not show pain unless there is a sudden acute congestion associated with it.

This emphasizes the fact that pain as a result of changes in the parenchyma of a glandular organ is rare, it is necessary to have stretching, or tearing, or increased pressure on the capsule of such an organ to produce pain.

When a renal lesion produces pain there has been some disturbance of the mechanical factors of urinary secretion or direct involvement of the capsule or pericapsular tissues.

If the surgical diseases of the kidney are studied, we find that here a different condition is encountered, for the pathological changes present often early produce interference with the mechanics of urinary secretion and excretion as well as capsular and pericapsular changes.

Backache, therefore, as a symptom of diagnostic value from a renal aspect, becomes more of surgical than medical importance.

Four pathological conditions which are apt to be confounded with renal lesions by reason of the symptom of pain are: disease of the gall bladder and gall ducts, gastro-duodenal ulcer, chronic appendicitis and certain colon affections.

The upper right quadrant of the abdomen harbors other viscera in such close approximation to the kidney that stimulation of one or more of the various viscera may give rise to any type of localized or referred pain which may easily be mistaken for pain of renal origin.

In any of these conditions there is, however, beside the backache, which may or may not be present, certain radiations of the pain which are somewhat characteristic of the viscera involved.

For instance, the fact that the renal pelvis, ureter and bladder are similar anatomically to the gall bladder, the common duct and the duodenum, renders a certain parallelism in symptomatology at once apparent.

The start of a Calculus Colic in either system may be similar in certain manifestations, similar in sudden onset and paroxysmal type but different in allocation of the referred pain.

An appendix occupying a retroperitoneal position in close proximity to the lower pole of the right kidney may produce backache, simulating that produced by renal or perirenal inflammation, because infections of the perirenal tissues have localized pain as their prominent symptom. It is constant, of aching character, continuous and progressive.

The most severe renal pain is that produced by embolism or infarct of the kidney. It is only to be distinguished from other true kidney pain by the suddenness of its onset. It is localized deeply in the back, over the affected kidney and does not radiate.

True renal pain being due to some affection which produces gross changes in the kidney, we expect and find it present in suppurative renal diseases from Pyelitis, Pyelonephritis to Pyonephrosis, in Tuberculosis, new growths, etc.

In calculus disease of the kidney a rather different picture is presented as far as backache or pain is concerned.

If a renal calculus is entirely surrounded by glandular tissue and does not project into the renal pelvis, it is doubtful whether it ever produces pain of any type, and it is not until a calculus becomes loose in a dilated calyx or in the pelvis that pain is present.

When lesions involve the pelvis of the kidney and upper ureter, the constant ache of renal pain is apt to be displaced by paroxysmal colic with radiation along the ilio-hypogastric, ilio-inguinal and genito-femoral nerves.

Colic, not backache, is therefore the calculus pain. The pain of a passing calculus may be lumbar at its onset, and segmental movement of the pain indicate a change of its position from kidney to ureter.

If, however, becoming arrested in its passage, and from partial or complete occlusion of the ureter, distension of the renal pelvis occurs, the colicky pain changes to the backache of a true renal pain; likewise, aseptic and septic occlusive changes in the ureter will induce this type of pain.

The incidence of backache as a symptom of ureteral stricture is constant in a great majority of patients.

In a recent communication (S. G. & O., Jan., 1927, "Ureteral Stricture in Male and Female") Tolson reports one hundred cases in which pain in the lower back was found as a symptom in ninety-four of the cases. In thirty-one patients, chiefly on the right side; in twenty-one on the left side, and both sides in forty-one.

The backache is produced by the continuous partial ureteral block elevating the intrarenal tension. If the experience of many urologists be accepted as a criterion to the prevalence of ureteral stricture without urinary symptoms or changes in the urine to direct attention to them as causative of backache, may be explained many cases which have remained unrelieved.

These patients are prone to complain of symptoms referable to the gastro-intestinal tract plus the backache, a symptom-complex similar to that presented by patients suffering from mobile kidney.

The gamut of symptoms of digestive disturbance may be met with from gas distension, belching and constipation to anorexia, nausea and vomiting.

The production of various gastro-intestinal symptoms by the influence of a mobile right kidney is best appreciated if one considers the folds of peritoneum which extend from the right kidney to the duodenum, liver and colon. A ureteral stricture may produce a mild or a marked degree of hydronephrosis; the extra weight of the kidney produced by this change may cause a drag upon the duodenum and stomach even to producing an angulation of the bile duct, and the explanation for the gastro-intestinal symptoms is apparent. The backache in such cases probably being due to overdistension of the renal pelvis but possibly to the irritation of the viscera secondarily effected.

Backache due to increased pelvic or renal tension from obstruction of the outflow of urinary secretion will be bilateral or unilateral according to the location of the obstruction. If in one ureter, unilateral, if in both ureters, prostate or urethra, bilateral. Unilateral renal distension is seen also occasionally in lower tract obstructions.

Inflammatory lesions in the lower genito-urinary tract produce backache in two situations, one the lumbar ache, the other the sacral ache.

The lumbar ache is from secondary renal irritation, the sacral ache from involvement of the deep lymph in that region, or involvement of cord, vesicle and prostate.

In certain instances both aches are present. This brings up a point of considerable interest. In colon B. infection of the kidney, a disease which has long been looked upon as being of haemic origin, it is increasingly becoming probable that the disease originates from an infection through the lymphatics.

It has been found that the lymphatics of the kidney anastomose with the lymphatics of the caecum and gall bladder and other of the abdominal viscera.

The lymphatic union between bladder and kidney is not direct but exists either by the interposition of the regional glands of the bladder and kidney or by means of the lymph vessels of the ureter.

In the male, when colon B. Pyelitis occurs, there is very frequently an associated infection of both kidney and prostate.

The backache resulting from this is often extensive in area on account of the acute process in the kidney and the extensive lymphatic involvement from prostate to kidney.

As the kidney infection subsides, the lumbar ache disappears, but the sacral ache remains; since the renal infection may clear up leaving a local infective prostate, only to be again re-infected if the lower lesion is not cured.

In such cases epididymo-orchitis may also develop with supuration and pus cultures of B. Coli thus adding another factor for backache production.

In order to establish this fact that a backache is of pyelogenic origin it must be correlated with associated findings.

Modern diagnostic methods have brought the accuracy of diagnosis in uro-genital lesions to such a high standard that in the main with findings we are able to prove or disprove the organs of genito-urinary system as being responsible for backache in the patients presenting this symptom.

When these examinations are completed, the clinical picture will catalogue itself under one of the following groups: Pain with pus but without cystitis, suggesting the calculus group; pain with pus, with cystitis, suggesting the tuberculous group; pain without pus, without cystitis, plus tumor, suggesting the aseptic

hydronephrotic group; pain with tumor, with pus, with or without cystitis, suggesting the septic hydronephrotic group; pain with blood, without cystitis, the neoplastic or essential haemorrhagic group.

FROM THE STANDPOINT OF THE GYNECOLOGIST

GEORGE GRAY WARD

(Delivered before The New York Academy of Medicine, January 20, 1927)

That backache may originate from a variety of co-existing causes and occurs in both the male and female is well understood. But its greater frequency in women, as a result of pelvic disease peculiar to the sex, makes it preëminent as a gynecologic symptom. We must remember, however, that while female pelvic disorders commonly produce backache, the etiological factor in the case under observation may belong to the realm of the other departments of medicine.

The backache that is essentially gynecologic is most usually sacral in location, although the lumbar region and coccyx may be involved.

The chief causes of backache in women may be ascribed to pelvic disease, orthopedic disease, faulty stance or posture and fatigue.

In the Woman's Hospital we have an exceptional opportunity to observe not only the symptomatology of these conditions, but the ultimate results of treatment, as the Follow-up System is compulsory for all the surgeons. Each of the four gynecological divisions and the obstetrical division has its weekly follow-up clinic which the attending surgeon in charge of the division and his assistants must attend in person. Our views then are at first hand.

Our statistics show that approximately 85 per cent. of our gynecologic cases complaining of backache are caused by gynecologic pelvic disease, and the remaining 15 per cent. orthopedic or non-surgical conditions.

Under the category of pelvic disease we include such factors as produce pelvic congestion and inflammation, traction on ligaments and supports of the pelvic organs, and pressure.

Pelvic Congestion

The most frequent direct cause of gynecologic backache is *Pelvic Congestion*. Any condition that will produce this state is an etiological factor, such as retrodisplacements with and without complicating inflammatory disease, adnexal inflammatory disease with exudate and adhesions, lacerated cervix with cervical infections, menstruation, and constipation.

Traction on Ligaments and Supports of the Pelvic Organs

In uterine prolapse, cystocele, rectocele, enterocele and relaxed and lacerated pelvic floor there is a traction exerted on the supports which produces pelvic tenesmus and backache.

Pressure

Fibroids, cysts and exudates may make pressure on the cervical ganglia of the sympathetic nervous system in the region of the cervix, rectum, and uterosacral ligaments, and on the roots of the sacral nerves where they emerge from the sacral foramina, and thus produce referred backache.

The work of Lovett and others has pointed out the various orthopedic conditions that may be the etiological factors in backache. Reynolds and Dickinson have studied these factors from the gynecologic point of view. Focal infections also play their part.

In pregnancy the sacro-iliac joints and the symphysis have exaggerated mobility and in the later months there is a faulty stance which is productive of backache. Painful pelvic joints are not to be wondered at after difficult labor, due to the stretching and their mobility.

Faulty posture is common in women. The exaggerated shoes, the debutante slouch, relaxed abdominal walls, and poor musculature may result in enteroptosis and muscle fatigue with backache.

The importance of a proper diagnosis for the 15 per cent. of our cases of backache not due to pelvic disease led me to establish a diagnostic orthopedic clinic at the Woman's Hospital, to which we could refer all doubtful cases for a differential diagnosis. This clinic was started in 1920 and has been under the

that there were 129 cases of uncomplicated retroversion operated upon for the correction of this displacement. All of these cases had backache as a symptom. One hundred and three were cured of their backache. In the twenty-six cases that were not relieved, the backache was due to other causes.

There were sixty-eight cases with retroversion with adnexal inflammation with backache; fifty-nine of these were cured of this symptom, and nine were unrelieved.

Retroversion is an association of uterine prolapse and is always its first stage. There were 84 cases of uterine prolapse in this study with backache. Seventy-five of these were cured of their symptom by the operation, and in nine it persisted.

In twenty-three cases of uncomplicated retroversion with laceration of the cervix or pelvic floor in which backache was a predominant symptom, the operation to correct the retrodisplacement and to repair the injuries resulted in a cure of all.

To summarize this study of the end results it was found that 80 per cent. of the cases of uncomplicated retrodisplacement, 87 per cent. of the cases with associated adnexal disease, 90 per cent. of the cases with prolapse, and 100 per cent. of the cases of uncomplicated displacement with associated cervix or pelvic floor injuries were relieved of their backache. In this series of 721 cases of backache 85 per cent. were cured by appropriate gynecologic operations. About 15 per cent. were of an orthopedic or non-surgical nature.

In the nine years from October 1, 1915, to October 1, 1924, I find that our records show that there were a total of 22,625 gynecological admissions to the hospital.

During this same period there were 3,357 operations for the correction of uterine retrodisplacements by different operators, or nearly 15 per cent. of the gynecological admissions.

A study of the end results of 561 of these cases occurring during a period of five years from October, 1919, to October, 1924, all of which were under a follow-up observation for a year or longer, shows that the percentage of success in the relief of the classical symptoms including backache for which they sought aid, was 88 per cent., and the partial successes and failures were 12 per cent.

Summary

1. From the standpoint of the gynecologist sacro-lumbar backache is a prominent symptom in approximately 50 per cent. of all gynecologic cases.
2. In our experience 85 per cent. are gynecologic in origin and 15 per cent. are orthopedic or non-surgical.
3. In the cases due to gynecologic disease pelvic congestion, however produced, is a predominating factor.
4. Traction on the pelvic viscera supports the result of injuries incident to parturition is a common cause.
5. Pressure on the pelvic ganglia and nerves produced by neoplasms or exudates may result in reflex backache.
6. In view of the considerable number of gynecological cases seeking relief for backache in which the symptom may be caused by factors other than pelvic disease, or which may be associated with it, the cooperation of the orthopedist, the internist, the urologist and the neurologist may be necessary for a differential diagnosis and cure.

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ABSTRACTS OF PAPERS PRESENTED AT
SECTION MEETINGS*Section of Medicine, December 21, 1926*THE PRESENT STATUS OF THE CLASSIFICATION OF
BRIGHT'S DISEASE

ROLFE FLOYD

Confusion in the classification of Bright's Disease has always been great, and one hundred years of study have not made it less. This confusion, though primarily due to the inherent difficulties of the problem, is greatly enhanced by the habit of regarding all our subdivisions of Bright's as well-defined and valid groups. As a matter of fact, several of them are very ill-defined, while some others are fundamentally false in conception. This unwarranted assumption of knowledge we have not constantly leads us astray.

The thorough understanding of any living organ depends on knowing how it is made, how it functions, and how it has come into being and developed to its mature state. These features are essential expressions of its life.

The thorough understanding of a disease in an organ depends on a knowledge of what alterations the disease has caused in the structure and functions of the organ, on how these alterations in structure and function interdepend one on the other, and on how they may progress or recede as time goes on. These features constitute essential expressions of the disease process.

This underlying process which causes departures from normal both in the structure and in the activity of an organ is the most fundamental conception we can form of a disease. It is not the irritant agent, such as bacterium or poison, but the disturbance which this induces; in other words, it is the reaction of the living organ to the irritant. It is neither the lesion nor the symptoms but the process which underlies and produces both. For some time and even to-day the lesion has been regarded as the cause of the symptoms but this view is by no means invariably true.

There can be no question that changes in structure cause changes in activity in many cases, but in others it is equally certain that changes in activity induce changes in structure. The more complete our understanding of disease the more we find disturbance of structure and disturbance of function to be correlated and interdependent. This interdependence becomes increasingly evident when we bear two things in mind; first, that the change in structure is not fixed and permanent as we see it after death, but changing from minute to minute in the diseased living organ; and second, that many intimate changes in structure, including chemical ones, entirely escape our most searching methods of study.

No classification, therefore, that is based on lesions alone, or on symptoms alone, can ever prove ultimately satisfactory.

The best classification of the diseases of any organ, then, must be based on defining the separate disease processes that occur in that organ. This conception of classification underlies the work of Delafield and also the work of Volhard and Fahr. Delafield classifies Bright's according to what he terms the "morbid process"; Volhard and Fahr according to "pathogenesis," which means the same thing, only in Greek.

Unfortunately, however, in spite of all the work that has been done, the pathogenetic classification of Bright's remains to-day very far from complete.

In some diseases a knowledge of the irritant that causes the morbid departures from normal gives the key or at least a clue to the morbid process, because a given irritant may be almost inevitably followed by a constant effect. This method of approach, unfortunately, is only occasionally helpful in the case of the kidney, because the same irritant incites different diseases, different irritants incite the same disease, and in many, perhaps most, cases of Bright's the irritant is not accurately known. So etiology, though indicative of pathogenesis in isolated instances, as in bichloride cases, can never furnish adequate basis for an entire pathogenetic classification of Bright's.

Again in some organs the diseases that occur in man can be almost duplicated in animals, thus affording opportunity for studying the disease process step by step, and the knowledge so acquired reveals the nature of the disease in man. The efforts,

however, to produce Bright's in animals have proved peculiarly unsuccessful and so have contributed but little to our comprehension.

The student of Bright's Disease must accordingly depend chiefly on a knowledge of the normal kidney, on a knowledge of renal symptoms during life, and on a knowledge of renal lesions after death.

As to the normal kidney, its development and its structure are comparatively well known, but the way it works and the relation of its structure to its functions are still largely obscure.

As to the symptoms of Bright's, these are very numerous and varied, with enormous differences from case to case, while their exact relation to lesions is, in most instances, unknown.

As to the lesions, they are at least concrete and can be made into objects of prolonged study, but they are infinite in variety. Their interpretation is confused not only by post-mortem alterations but by the presence of incidental changes that have been added in the last hours or days of life as in all pathological study. Even when such additions can be correctly estimated the lesion only shows the final state of the organ. It is as if we were shown the last individual negative on a moving picture film and asked to sketch in all those that preceded it.

These circumstances combine to make the kidney perhaps the most difficult organ in internal medicine to-day, with the exception of the brain.

The chief present stumbling block is that we usually can not say with what particular lesion a given symptom belongs, and we shall not be able to until we know what functions the glomerulus and the various highly differentiated portions of the normal renal tubule individually perform. Until we know this we dare not extensively correlate symptoms with lesions and must keep these two large sets of facts separate in our minds. This is so distressing and the demand for relief has been so insistent that it has warped judgment and even compromised intellectual honesty. Many unwarranted correlations have been suggested and accepted with the result that advance in knowledge has been delayed and nephritic cases have suffered more than has been necessary.

Under these circumstances it is imperative to subject every sub-group of Bright's Disease to analysis and criticism and determine the validity of each.

In a true pathogenetic group all the cases will be due to the same morbid process which will produce similar lesions and similar symptoms in each case. In other words, when we find a disease with constant symptoms associated with constant lesions we have the right to believe that these are the common expressions of a single constant underlying disease process, and we have the further right to assume when we meet the symptoms that the lesion exists in the kidney, or when we see the lesion after death to believe that the symptoms obtained in life.

On the other hand, a group in which neither the lesions nor the symptoms are at all constant from case to case, we must regard as not being the expression of a single morbid process. Such groups do not correspond to nature and should be discarded because they inevitably lead to error at the bedside.

There is a third set of groups in which only the lesion or only the symptoms are constant while the other feature is inconstant or unknown. Such partly-defined groups may or may not represent a single morbid process. They are make-shifts and we have the right to use them so long as we keep their make-shift character clearly in mind. The trouble with them is that, with use, they soon come to be regarded as established pathogenetic groups, which they are not.

It so happens, since post-mortem lesions are less mutable than symptoms and also because of the prominence given to pathology in the last century through the revelations of the microscope, that most renal diseases are named after their pathological features. This is not necessarily vicious so long as it is remembered that the lesion is not the disease but only one expression of it. Both Delafield in 1882 and Volhard in 1914 employ such terms, though they are both unequivocal believers in pathogenesis as the only adequate basis of classification.

Further, in the review which follows, only one or two outstanding features of each group are mentioned to serve as marks of identification. More complete definitions of the various groups are purposely omitted, because they would make the paper cumbersome, and tend to distract attention from the point at issue.

I now propose that we judge the sub-groups of Bright's according to this test; namely, the constancy of their lesions and of their symptoms and then separate them into three categories according to their validity.

I. In the first category, the category of valid pathogenetic groups, I believe we should place:

1. *Acute Denegetation*. Both the mild form called "cloudy swelling" or the "fever kidney" and the severe form seen with bichloride and other metallic poisons. The basic lesion is a degeneration of the tubular epithelium; the glomeruli and stroma remain normal. The symptoms consist of albumin and casts in the urine and, in the severe cases, anuria. The other symptoms of renal inflammation are notably absent. I have been unable to find out who first recognized this condition. Delafield insisted on it, and it is generally accepted both here and abroad.

2. *Chronic Congestion*. The lesion is a dilatation and thickening of the glomerular loops; the symptoms, albumin and casts in a urine of increased gravity and diminished volume. This condition was originally recognized by Traube about 1850.

3. *Acute Exudative Nephritis*. The essential lesion is an exudate from the blood vessels, some cell growth on the glomeruli but no new growth of stroma. The symptoms are albumin and casts and blood in the urine, dropsy and slight hypertension. Recovery, if it occurs, is complete.

4. *Acute Productive Nephritis*. The lesion differs from the above in that new connective tissue is formed in the stroma from the very beginning. The symptoms are the same except that the onset is often insidious and the recovery regularly incomplete and followed by a chronic nephritis.

This sub-division of acute nephritis into acute exudative and acute productive is Delafield's. Some German authors, as Senator, agree with him, but Volhard dissents. These two groups have proved valid in my experience.

5. *Chronic Nephritis*. The characteristic lesion is of the stroma, the glomeruli, the tubules, and usually of the vessel walls. The symptoms are albumin and casts in the urine, dropsy, hypertension, uraemia, retinitis. As a large group, chronic nephritis is pretty well defined. Its recognition may be said to date from Bright's original work.

6. *Waxy Kidneys*. A sub-division of chronic nephritis. The lesion consists of a deposit of waxy substance in the glomeruli and vessels in addition to the changes seen in chronic nephritis. The symptoms are massive albuminuria and dropsy, without hypertension. This condition occurs with long standing tuberculous and suppurative processes. It was recognized in 1842 by Rokitsansky and has been accepted as valid ever since. Volhard and Fahr blurred its definition by placing it in their heterogeneous nephrosis group but, in my opinion, altogether without adequate reason.

7. *Simple Sclerosis*. The lesion is a sclerosis of the very small renal arteries. The symptom is hypertension.

8. *Malignant Sclerosis*. To the arterial changes of simple sclerosis the lesions of chronic nephritis are added. The symptoms are albumin and casts in the urine, extreme hypertension, retinitis, uraemia.

With this sclerosis of the very small arteries, a sclerosis of the larger arterial branches often coexists with the resulting scars that form the arteriosclerotic kidney. It is my understanding, however, that it is the sclerosis of the very small vessels only that is associated with hypertension. That of the larger vessels frequently occurs without either hypertension or any other renal or circulatory symptoms.

Delafield gave up the attempt to subdivide further chronic nephritis on a pathogenetic basis. Volhard and Fahr undertake to do so and define three main groups: Nephrosis, Nephritis and Sclerosis. Their Nephrosis fails under analysis, as I shall presently contend. Their Nephritis in general corresponds to the nephritis of other authors, but their conception of Sclerosis seems to me to be a great advance. It has repeatedly proved valid in my experience, both clinically and at post-mortem.

II. In the second category, the category of *invalid* groups, where both the lesions and the symptoms are so inconstant as to make it extremely unlikely that they correspond to anything in nature, I would place:

1. *Chronic Parenchymatous Nephritis*. The lesion is essentially an inflammation of the tubules, to which glomerular, stromal and vascular changes are later added. Grossly it produces the large white kidney. The symptoms are massive albu-

minuria, dropsy and pallor, with little or no hypertension or uraemia in the early stages.

2. *Chronic Interstitial Nephritis*. The lesion is essentially an overgrowth of the stroma, to which tubular, vascular and glomerular changes are later added. Grossly it produces the small red granular kidney. The symptoms are traces of albumin in the urine, hypertension, retinitis and uraemia.

This division of chronic nephritis into parenchymatous and interstitial was originally made by Bartels, 1875, one of the greatest clinical students of renal problems. Its fallacies are obvious. Massive albuminuria and dropsy occur when the kidneys are small and the lesion not mainly tubular. Hypertension, retinitis and uraemia occur when the kidneys are large and the lesion not mainly stromal. Even as a classification of the lesions alone it is totally unsatisfactory, for not only does it leave glomerular changes too much out of account, but chronically inflamed kidneys do not naturally fall into any two such groups. As has been truly said when this grouping of chronic nephritis is used at the bedside, over half the cases brought to autopsy do not show the expected lesion.

Although this grouping has been repeatedly attacked by many of the best students, including Delafield and Volhard, it has held its vogue and has dominated the terminology of Bright's for fifty years. The prominence of its author together with its alluring simplicity have made it a most popular nostrum. That we are not yet purged of this error is shown by the daily occurrence of these terms in the literature and at the bedside.

3. *Nephrosis*. The lesion is non-inflammatory degeneration of the tubular epithelium. The symptoms are massive albuminuria and dropsy. This group was first formulated by Volhard and Fahr in 1914. Subsequent contributions by others have not improved its definition, in fact the term has become more obscure with use. I have no time to voice all my objections here, especially as they have already been published elsewhere.¹ Suffice it to say that the dependence of dropsy on tubular degeneration is by no means established and that severe epithelial degeneration occurs without dropsy. Moreover, Volhard and Fahr have

¹ "Kidney Disease from the Physician's Viewpoint" (Chapter on Nephrosis). Publisher, James T. Dougherty, New York, 1926.

jumbled in a lot of conditions under this head without presenting any adequate proof that they belong together. Acute degeneration and the waxy kidney are unrelated and form two of the most valid groups we have. Cases with large, white kidneys, massive albuminuria, and extensive dropsy had best be regarded as inflammatory until proven otherwise. Cases of pure epithelial degeneration with massive albuminuria and extensive dropsy are extreme rarities, lying outside the experience of most observers. Some of those reported probably cannot stand analysis. Even if one or two authentic observations exist they do not prove that the lesion and symptoms can be correlated and certainly form no basis for a group of kidney disease that is daily referred to.

Epstein has written extensively about cases of albuminuria and dropsy without hypertension. He sometimes calls them nephrosis and sometimes parenchymatous nephritis. He expressly states that he does not believe the symptoms to depend on epithelial degeneration.

Nephrosis means a non-inflammatory change in the kidney; so when we say a patient has nephrosis we state a belief that he has such a lesion and that his symptoms are to be correlated with this lesion. But this belief is practically certain to be wrong, and for this reason I take the ground that the term "nephrosis" should be altogether discarded. I have no expectations, however, that it will be. "Interstitial" and "parenchymatous" have lasted fifty years and are not yet obsolete. Nephrosis bids fair to do the same. Not so much because of the greatness of Volhard's scholarship as because it clothes our ignorance with seeming knowledge.

4. *Glomerulo-nephritis*. The lesion is primarily an inflammatory change in the glomeruli. The symptoms are albumin, casts and blood in the urine, dropsy, hypertension, retinitis, and uraemia; in other words, the symptoms of any nephritis.

My objection is solely to the "glomerulo" in this term. I do not think it has been shown that the glomerular changes are more basic in renal inflammation than exudation from the blood vessels or than the changes in the tubes, stroma, and vessels, nor have any symptoms been soundly correlated with glomerular lesions to the exclusion of others. That the glomeruli are vital to normal renal function and that they are regularly altered in renal inflammation is true, but that they are predominant either

Groups with only one constant feature may or may not be expressions of a single pathogenetic process, not yet fully defined. So long as this uncertainty is kept in mind, they may properly be employed until more complete information about them is obtained.

I fully realize that even though this plan for testing subdivisions of Bright's Disease were accepted, violent discussions might well arise as to the validity of a particular sub-group. I do not believe that after careful consideration this would apply to the majority of the groups, but even such discussions would have to deal with the essential features of the groups and help to clarify their definition.

My purpose is not destructive. I believe in the ultimate attainment of a pathogenetic classification of Bright's, though I feel sure I shall not live to see it realized.

My plea is that we honestly mark each sub-division of Bright's Disease at its true pathogenetic value, then eliminate the false ones, admit the partially defined character of others, and hold fast to those that prove true to nature.

Only in this way can we make the best clinical use of the knowledge we now have and foster the attainment of greater knowledge in the years to come.

Section of Neurology and Psychiatry, January 11, 1927

THE FEELING OF INFERIORITY AND ITS COMPENSATION

ALFRED ADLER
Vienna

"The Feeling of Inferiority" is the most important view and the legitimate child of the Adlerian Individual Psychology. It means a lasting fundamental feeling which originated in early childhood when the child had a weak body and experienced difficult situations. The more painful were those experiences the greater was the feeling of inferiority. This fundamental feeling acts as a stimulus to overcome the present situation and its difficulties.

In this striving to overcome, in its every plane, there is lying an ideal goal of the future. In this goal is foreseen and anticipated as a stimulating and consoling presentiment a feeling of balance, security, totality, and, especially in the frequent cases where there is a more urgent and greater feeling of inferiority, an aim of superiority. Along this action line leading from "down" to "above" you can find connected with and impressed by it every expression, symptom, feeling, understanding and thinking.

When the feeling of inferiority is increased and the goal is much more elevated and urging, the whole style of life is a varied one, striking, expressive, impatient, egotistic, sensitive, cautious, hesitating or escaping. Each new situation brings new difficulties because the preparation for the usual new situations in life is too tense, precipitate, or wrong. New situations for which there is demanded a well-developed social feeling are especially felt as a danger to the goal of superiority.

In life you can find three fundamental questions: the social question (friendship, comradeship, truth, social behavior, etc.), the question of occupation, and the question of love and marriage. Everybody gives his individual answer to these questions by his behavior, and this answer is also an expression of his action line or his style of life. Therefore we may draw conclusions from the answers to the style of life and we can insist that all false answers are the results of a greater feeling of inferiority (neurosis, problem children, crimes, etc.). In all those cases we judge a movement as to whether it is on the useful side connected with the social feeling, or on the useless side. Thus sometimes a greater feeling of inferiority can stimulate the individual to the accomplishment of great things in science, art, etc., if courage is not lost.

The neurosis begins before a difficult problem and causes a loss of courage, so that the individual begins to hesitate or stop. In spite of wanting to solve his problem and satisfy his desire to be a conqueror, he fears a defeat even more and escapes to the useless side, fixing and securing his escape by being always pre-occupied with the means (headache, anxiety, sleeplessness, fits, depression, compulsion neurosis, etc.). In this phase he is not really the conqueror, but he is satisfied with the presupposition

and the presentiment that he could be the conqueror if he did not have such a fatal hindrance. He hides from himself and others his real feeling of inferiority, decreases the circle of the action line of his life, and is continually striving to be the center of his family with extenuating circumstances for his lack of achievement.

With this strong network is it difficult to mistake a style of life? We can reckon with the reasons: wrong situations in childhood, the goal of superiority, whether the movement is on the useful or useless side, the degree of courage he possesses, and every expression. We are not surprised, therefore, to be informed that a noted psychologist has called Individual Psychology the copernicle deed in pedagogy.

PROCEEDINGS OF ACADEMY MEETINGS

STATED MEETINGS

February

Thursday evening, February 3, at 8:30 o'clock

Program arranged in cooperation with the Section of Laryngology and Rhinology.

ORDER

I. Executive session.

W. E. E. Ellows.

Election of COMPOS of the Committee on Admission.
Election of four members of the sphenopalatine and
D. Alfred A. Klepper.

Demonstration of specimen cranial sympathetic, Frank
gasserian ganglia, Julius. bia University (by invitation).
Some observations on the nasal ganglion, Simon L. Rus-

IV. The symptomatology of the Hubert, J. Ramsay Hunt,
Henry Pike, Ph.D., Colum. fess Faulkner.
kin (by invitation).
Discussion opened by Louis

Charles A. Elsberg, E. Ro

MEETING

ry 17, at 8:30 o'clock

STATED ME
Thursday evening, Febru

ORDER

- I. Executive session.
- II. Symposium :
 - The Broader Field of Psychiatry.
 - a. Some practical fields for mental hygiene, C. Macfie Campbell, Boston (by invitation).
 - b. Preventive psychiatry in childhood, Marion E. Kenworthy.
 - c. The place of psychiatry in general medical practice, Thomas W. Salmon.

SECTION MEETINGS

SECTION OF DERMATOLOGY AND SYPHILIS

Tuesday evening, February 1, at 8:00 o'clock

ORDER

- I. Presentation of patients.
 - a. Cases from the Cornell University Clinic, Hans J. Schwartz, J. Frank Fraser, Joseph J. Eller, Andrew J. Gilmour, Ray H. Rulison.
 - b. Cases from the City Hospital, A. Benson Cannon.
 - c. Cases from the New York Polyclinic Hospital, Frederic H. Dillingham, Jerome Kingsbury, Lawrence K. McCafferty.
 - d. Miscellaneous cases.
- II. Discussion.
- III. Executive session.

Notice: Hereafter examination of patients will be limited to Fellows and their invited medical guests.

SECTION OF SURGERY

Friday evening, February 4, at 8:30 o'clock.

ORDER

- I. Reading of the minutes.
- II. Presentation of cases.
 - a. 1. Case of transperitoneal splenectomy and nephrectomy for traumatic rupture of both organs.

2. Case of multiple intestinal anastomoses (enteroenterostomies) for chronic intestinal obstruction, Leo Buerger.
- b. 1. Compound fracture involving the ankle and knee joints. Late results.
2. Compound fracture of the tibia with open knee joint.
3. Compound fracture of the tibia with pedicle skin flap.
4. Compound fracture of the tibia with late pedicle skin flap for thin scar.
5. Foreign body of unusual origin in knee joint, John H. Garlock.

III. Papers of the evening.

- a. Acute empyema in children, John V. Bohrer.
- b. The control of post-operative hemorrhage following a nephrotomy for the removal of calculi, Dougal Bissell.

SECTION OF NEUROLOGY AND PSYCHIATRY

Tuesday evening, February 8, at 8:30 o'clock

ORDER

- I. Reading of the minutes.
- II. Presentation of cases.
Tumor of the medulla (clinical and pathological presentation), George H. Hyslop.
- III. Papers of the evening.
 - a. The palaeomorphology of the human head: ten structural stages from fish to man, William K. Gregory, Ph.D. (by invitation), Curator, Department of Comparative Anatomy, The American Museum of Natural History.
Discussion by J. H. McGregor, Ph.D. (by invitation), Professor of Zoology, Columbia University, Henry Alsop Riley.
 - b. The relation of cardiovascular disease to hemiplegia, Louis Faugeres Bishop.

SECTION OF PEDIATRICS

Thursday evening, February 10, at 8:30 o'clock

ORDER

- I. Reading of the minutes.
- II. Papers of the evening.
 - a. Sinusitis in children, Simon L. Ruskin (by invitation).
Discussion by Murray H. Bass, Roger H. Dennett.
 - b. The effect of parathyroid extract on tetany and rickets in infants, Lynne A. Hoag (by invitation).
Discussion by Isidor Greenwald, Ph.D., Oscar M. Schloss.
- III. General discussion.

SECTION OF OTOTOLOGY

Friday evening, February 11, at 8:30 o'clock

- I. Reading of the minutes.
- II. Presentation of cases.
 - a. Fracture of the skull following a radical mastoidectomy, simulating a brain abscess, Herman F. Lampe.
 - b. Temporo-sphenoidal lobe abscess complicating a chronic mastoiditis, Morley T. Smith.
- III. Papers of the evening.
 - a. Erysipelas following bacillus pyocyaneus infection in mastoid wounds, Ralph Almour (by invitation).
Discussion.
 - b. A clinical and pathological survey of otogenic paralysis of the sixth nerve, William H. Sears (by invitation).
Lantern slides.
Discussion by Edward B. Dench, Israel Strauss.

SECTION OF MEDICINE

Tuesday evening, February 15, at 8:30 o'clock

ORDER

- I. Papers of the evening.
 - a. Infectious psychosis, Gregory Zilboorg (by invitation).
Discussion, George William Henry (by invitation), Joseph Charles Roper, John Fielding Black.
 - b. Cardiac asthma, Morris H. Kahn.
Discussion, Bernard Sutro Oppenheimer, R. Burton Opitz (by invitation), Louis Faugeres Bishop.
- II. Executive session.

SECTION OF GENITO-URINARY SURGERY

Wednesday evening, February 16, at 8:30 o'clock

ORDER

- I. Reading of the minutes.
- II. Presentation of instruments.
A modification of the McCarthy panendoscope for continuous irrigation, Clyde W. Collings.
- III. Presentation of cases.
 - a. A case of bilateral congenital hydronephrosis, Clarence G. Bandler.
 - b. Three cases of prostatic intrusion operated upon by the electrotome cutting current, Clyde W. Collings.
 - c. A case of probable congenital bilateral ureteral and renal dilatation, Stanley R. Woodruff.
- IV. Paper of the evening.
Commissural prostatic hypertrophy, with lantern slide demonstration, Alexander Randall, Philadelphia (by invitation).
- V. Discussion opened by Edwin Beer, Oswald S. Lowsley.
- VI. General discussion.
- VII. Executive session.

SECTION OF ORTHOPEDIC SURGERY

Friday evening, February 18, at 8:30 o'clock

ORDER

- I. Reading of the minutes.
- II. Presentation of cases.
 - a. A case of suppuration of the sacro-iliac joint, Joseph E. J. King.
 - b. A postoperative result in a case of dislocation of the ankle with fracture and avulsion of the head of the astragalus, Charles Ogilvy.
 - c. Familial claw foot with absent tendon reflexes, three cases, Charles Rosenheck.
 - d. Paralytic deformities of elbow and wrist—preliminary non-operative care, Walter Truslow.

- c. Dystonia musculorum—orthopedic treatment and result (moving picture demonstration), Edgar D. Oppenheimer.

Discussion by Philip S. Goodhart.

III. Papers of the evening.

- a. The supratrochlear foramen, I. Seth Hirsch.
- b. Operative reconstruction work on the upper extremity, Arthur Steindler, Iowa (by invitation).

SECTION OF OPHTHALMOLOGY

Monday evening, February 21, at 8:30 o'clock

ORDER

- I. Reading of the minutes.
- II. Clinical cases.
 - a. Tower skull optic atrophy, Franklin Bracken (by invitation).
 - b. Lantern slide demonstration, microscopic slides of cysts of the eye ball and orbit, Bernard Samuels.
- III. Papers of the evening.
 - a. The development of the glaucoma scotoma, A. H. Thomasson.
 - b. Historical perspectives in ophthalmology, Arnold C. Klebs, Nyon, Switzerland (by invitation).
- IV. Executive session.

SECTION OF OBSTETRICS AND GYNECOLOGY

Tuesday evening, February 22, at 8:30 o'clock

ORDER

Program from the Gynecological Services of the Post Graduate Hospital.

- I. Case report.
 - Brief discussion of three cases of extra-vesical ureters, H. Dawson Furniss.
 - Discussion by Edward F. Kibane.
- II. Papers of the evening.
 - a. Clinical end-results following diathermy in gynecologic conditions, Mortimer Hyams (by invitation).

Discussion by Arnold Sturmdorf.

- b. Combined electro-coagulation and radium therapy for carcinoma of the cervix. Preliminary report, Thomas H. Cherry.

Discussion by George A. Wyeth, Charles F. Finsterwald (by invitation).

- c. Uterus duplex unicollis (with comments on malformations of the uterus), Walter T. Dannreuther.

Discussion by William P. Healy.

- d. Report on sperm examination in obscure cases of sterility, Gerard L. Moench.

SECTION OF LARYNGOLOGY AND RHINOLOGY

Wednesday evening, February 23, at 8:30 o'clock

ORDER

- I. Reading of the minutes.
- II. Presentation of instruments.
 - a. An operating and visualizing sinuscope, Samuel Morse (by invitation).
 - b. A double spiral tonsil tenaculum, W. W. Carter.
- III. Presentation of cases.
 - A case of aberrant thyroid of the vocal cord, Sidney Yankauer.
- IV. Paper of the evening.
 - a. Functional restoration in repair of facial injuries. Color photography—lantern slides, J. Eastman Sheehan.

SECTION OF HISTORICAL AND CULTURAL MEDICINE

Thursday evening, February 24, at 8:30 o'clock

ORDER

- I. Reading of the minutes and annual report.
- II. Papers of the evening.
 - a. Philosophy of history, John C. Hemmeter, Baltimore (by invitation).
 - b. Pioneer medicine in Western Pennsylvania, Theodore Diller, Pittsburgh (by invitation).

- c. Some discussion of the life work of Albert G. Walter, with exhibition of colored drawings and original case histories, H. N. Malone, Pittsburgh (by invitation).

Discussion, J. Ramsay Hunt, Bernard Sachs.

III. Discussion.

PUBLIC HEALTH RELATIONS COMMITTEE

Report on the Administration of the City Health Department

February 28, 1927

Honorable James J. Walker,
Mayor of the City of New York,
City Hall,
New York City.

My dear Mayor Walker:

At the invitation of the Committee on Public Health Relations of The New York Academy of Medicine, Commissioner Harris came to us and discussed the report which he had rendered to you under date of January 19. This report was analyzed in detail by us and was made the basis of a communication which we have submitted to the Council of the Academy. It gives us pleasure to send to you, enclosed, a copy of our report.

Commissioner Harris has endeavored to carry out a general program for the improvement of the Health Department, and he has inaugurated very important progress in its work. Your foresight in appointing as Commissioner a man trained in public health has been amply justified, and has resulted in the strengthening of your administration.

The Committee is glad to assure you of its continued interest in the administration of the Department of Health, and to offer to you its hearty cooperation in carrying out your original program of progress.

Since the public health of the city is a matter of vital importance to all its citizens and is the particular responsibility of the medical profession, our report, as herewith submitted, will be published in the *Bulletin* of the Academy of Medicine.

Yours very truly,

CHARLES LOOMIS DANA,
Chairman.

every opportunity to continue utilizing this aid for the benefit of the city.

One of the most commendable achievements of the Department during the past year was the technically intelligent manner in which the needs of the Health Department have been studied by the Commissioner. We venture to say that the budget of the Health Department has never been presented with such an understanding of the needs of the Department as it was last year.

Reorganization of the work of the Willard Parker Hospital for Contagious Diseases, begun several years ago, has received further impetus. The service at this hospital has been put on a very high level of efficiency. Through affiliation with medical schools, it has become a center of teaching for medical students. The hospital has likewise made the necessary affiliation for the training of nurses in the care of contagious disease patients.

The Health Department's campaign against the soft coal smoke nuisance deserves special mention and commendation. The conditions that obtained during the coal strike might easily have presented the entering wedge for the continued use of soft coal, after the strike was adjusted. The Health Department has been particularly active in keeping before the public the importance of preventing this nuisance and has accomplished much in the actual abatement of the nuisance.

The creation of a centralized bureau for all the public health nursing activities of the Department is a move in the right direction.

We approve also the securing of special appropriations for research work in the Bureau of Laboratories and the efforts to re-establish the much needed Bureau of Public Health Education.

The Commissioner's report, as a whole, reflects the spirit of activity and progress pervading the Department and the intelligent direction of its work, and it is an emphatic testimony to the wisdom of the Mayor in appointing a man trained in public health and in steadily supporting the work and policy of his appointee.

Committee on Public Health Relations,
By CHARLES L. DANA, *Chairman*.

Approved by the Council of The New York Academy of Medicine, Samuel W. Lambert, President.

Report on Ambulances

The Committee has considered the following three questions with reference to the ambulance problem of this city:

1. Is the practice on the part of ambulance surgeons of private hospitals to transport a certain proportion of cases to municipal hospitals to be considered prejudicial to the health and life of these patients?
2. Is the tendency on the part of private hospitals to give up ambulance districts detrimental to the teaching of traumatic surgery?
3. Should ambulance work be carried on entirely by the city, and, if so, what is the best method of organizing it?

I

The Committee studied the records of three hundred and seventeen cases which were transported in Brooklyn to the municipal hospitals during the first six months of 1926. With two possible exceptions, no hazard to the life of the patient was involved in the removal to a more distant hospital. In the opinion of the Committee, the only conditions which require the taking of the patient to the nearest hospital are acute hemorrhage, gun-shot or stab wounds of the abdomen, and conditions requiring tracheotomy.

There are many reasons for the ambulance surgeon transporting the patient to a municipal hospital. First of all, he is under instructions not to bring to the hospital certain types of cases, such as alcoholism, drug addiction, communicable diseases, erysipelas, and so on. Secondly, the ambulance surgeon is compelled to take the patient to another hospital because of a lack of beds in his own. Thirdly, the ambulance surgeon knows that certain hospitals are especially equipped for the care of certain conditions.

In examining the list of conditions of the ambulance patients who were transported to municipal hospitals, there were several instances where, in the opinion of the Committee, it was more advantageous to the patient to be taken to a large municipal hospital with adequate resources rather than to a small private hospital inadequately equipped.

In connection with the gun-shot wounds, it must be remembered that in many instances the patient is a prisoner and it is extremely inconvenient to take such a patient to a private hospital where there exist no special prison wards.

To summarize this first question under consideration, it is the judgment of the Committee that on the basis of the evidence submitted there was no malpractice in the direct transportation of these cases to municipal hospitals and that the patients were not subjected to any extra hazard on account of it.

II

A large number of people when falling ill or when injured in the city streets are taken by taxicabs to the nearest hospital where they are almost invariably admitted whenever vacant beds are available. In view of these conditions, practically every hospital has opportunities to treat traumatic injuries. The interne staff of every hospital in the city has opportunity for experience in this type of surgery whether or not it is a hospital which operates an ambulance. The Committee feels that no hospital should be urged to maintain an ambulance service because of the opportunity it affords for the training of the surgical staff in traumatic surgery.

III

It is evident, in so far as ambulance service is concerned, that the trend of evolution is to give up ambulance work on the part of private hospitals. The few that still maintain ambulance service do so chiefly for traditional reasons. It is the opinion of the Committee that in the not very far distant future most of the ambulance work will have to be carried on by the municipality. In view of that, it is the opinion of the Committee that the matter should be given consideration by the city authorities as how best to organize the municipal ambulance service system. In some American cities the entire ambulance work is done by the city under the auspices of the police department. This might, perhaps, be considered in New York City. Different districts might be assigned to each tax-exempt hospital for a certain number of cases. Information regarding available beds could

be kept in each police precinct and the patients taken to the nearest hospital where facilities were known to be available.

THE LIBRARY AND ITS NEW FEATURES

The Library has now been in its new quarters for more than three months and gradually it is beginning to run more smoothly. It seems a good opportunity to tell the Fellows and other readers what changes have had to be made to meet the new conditions and what increased benefits can be enjoyed in the new building.

Lobby

On entering the library from the elevator, bags and papers may be left at the attendant's desk and reclaimed on leaving. At the far (east) end of the lobby, beyond the delivery desk, are the two card catalogues plainly marked "Authors" and "Subjects" and on shelves above and below the catalogue drawers are placed two complete sets of the *Index Catalogue of the Surgeon General's Library*, of the *Index Medicus*, and the *Quarterly Cumulative Index*. The *Reference Handbook of Medical Sciences*, the new dictionaries, the *Who's Who*, the latest editions of dictionaries of English and other languages, and the most recent medical dictionaries are also there. Boxes of call-slips used in ordering books from the stacks are also on the tables. Readers are requested to replace the catalogue drawers or books which they consult in the lobby.

Reading Room

This has six tables and seats for one hundred and eight readers. Ranged clockwise around the walls of the room, commencing just to the right of the door opposite the delivery desk, are the bound periodicals for about the last five years. Some have asked why we do not have in this room the last five years of every medical magazine. The answer is that of those periodicals for which there is great demand we have placed volumes for perhaps ten or fifteen years. Such magazines are the *Journal of American Medical Association*, the *British Medical Journal*, The

Lancet, the *American Journal of Medical Sciences*. In the reading room in 43rd Street, the periodicals were arranged according to language, that is, there were five or six alphabets. Here, on the other hand, they are arranged in one alphabet irrespective of language according to the first word of the title (omitting articles). Another copy of the *Catalogue of the Surgeon General's Library*, *Index Medicus*, modern systems of medicine and surgery, a few recent textbooks representative of all the branches of medicine and the auxiliary sciences, and the *Encyclopaedia Britannica* have been placed, as a small collection of reference books, on the shelves on both sides of the middle window in the north wall. Readers are earnestly requested to return these books to the shelves, but to leave on the tables those bound periodicals which they have taken down. The space across the middle of the room has been used twice for specially arranged exhibits of books and portraits—"Some Early and Later Medical Americana" and "Laennec and Auscultation."

Periodical Room

The magazines of the current volume are arranged in one alphabet just as in the reading room. It will be remembered that the American periodicals were in the lower, and the foreign ones in the upper, room in 43rd Street. Beginning at the left of the door at the end of the lobby the alphabet runs clockwise around the walls and then from east to west and from west to east zig-zagging along both sides of the three free-standing cases which traverse the room. The only exception to the strictly alphabetical arrangement is found at the end where a few of the recent Russian periodicals follow the Z's. This scheme of having only one alphabetical series is "new to us" but the idea seems to be a simple and logical one and is much in use elsewhere to-day. Formerly there was difficulty in tracking down an American or an English periodical for, although it was printed in English it might be upstairs in the foreign section or downstairs in the American one. Again, readers are requested to leave the periodicals on the table when they have finished with them. An assistant now has charge of the current medical journals and will be of great help to the Fellows and other readers.

Fellows' Room

In this room, where, by the way, Fellows may smoke, the new books, arranged alphabetically by author, are kept for three months, after which time they may be borrowed from the library. It is intended in the near future that poems and other literary works of doctors and works of the laity which have a medical flavor will also be put in this room. Such books should appeal to Fellows who wished to browse in this comfortable room. It is astonishing the number of odd corners of literature which have been adorned by the writings of doctors. By common consent, biographies are interesting reading so the Academy's large collection of biographies of medical men and scientists, which have one man as their subject, have been placed on the shelves in the Fellows' room. The younger Fellows, especially, will find a great stimulus from the accounts of these lives. It is desired that the new books, which Fellows consult, should be left on the tables and not returned to the shelves. Again, as noted on the backs of the call-slips, readers are asked to kindly return to the delivery desk those books which they have received from an attendant there. In the Fellows' room will be found Academy notepaper, pen, and ink.

The Stacks

As was the case at the old building, Fellows, on applying to the Librarian, may go into the stacks to refer to the books arranged in the various sections on the shelves. In 43rd Street there were only three floors in the stack but here there are nine, the eighth being on the level of the general library. The pages who fetch books all form a new staff and as soon as they are familiar with the positions of the classes of books on all the floors the service will be quicker than it is at present. There is ample room for expansion for some years to come and the books and bound periodicals have been arranged on the shelves so that new accessions can be added as they come in. On the upper three floors are the textbooks and pamphlets (octavo and quarto) and on the sixth down to the second floor (inclusive) are the files of journals arranged in one alphabet according to title. The health publications of various countries, states, provinces, counties, boroughs,

Photostat Department

We have a photostat room in the sub-basement and a skilled technician has been at work there since the middle of December. The charges are the same as those of the New York Public Library and there is no reduction for Fellows. They are as follows:

Size	Negative	Positive
8" x 14"	\$.25	\$.20
11" x 14"	\$.30	\$.25
14" x 14"	\$.40	\$.30
18" x 14"	\$.50	\$.40
Minimum charge \$.50		

A. M.

 RECENT ACCESSIONS TO THE LIBRARY, JANUARY

Barbour, A. H. F. Gynecological diagnosis and pathology.
3. ed.

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Bast, T. H. The life and time of Adolf Kussmaul.

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Berg, R. Die Vitamine. 2. Aufl.

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Bernhard Heine's Versuche über Knochenregeneration. Bearbeitet durch K. Vogeler [et al.].

Berlin. Springer. 1926. 224 p.

Blum, V., Glingar, A., and Hryntschak, I. Urologie und ihre Grenzgebiete.

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Broderick, R. A. Dental bacteriology.

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von Büben, I. Die klinische Anwendung der Diathermie.

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Buer, M. C. Health, wealth and population . . .

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Burke, E. T. Scourges of to-day. (Venereal disease, cancer, tuberculosis, alcoholism.)

London. Faber. 1926. 166 p.

- Cameron, T. W. M. Diseases of animals in relation to man.
Lond. Faber. 1926. 222 p.
- Catheart, G. C. The treatment of chronic deafness. . . .
Lond. Oxford pr. 1926. 88 p.
- Cipollone, L. T. Ricerche anatomiche sul labirinto membranoso
e sull organo dell' udito.
Milano. Soc. . . . ed. scient. 1926. 223 p.
- Clark, C. A. Dental radiography.
Edinb. Livingstone. 1926. 98 p.
- Cohn, A. Die Zahnheilkunde in der öffentlichen Gesundheits-
pflege.
Leip. Barth. 1926. 261 p.
- Conybeare, J. J. Self-care for the diabetic.
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- Cope, Z. The treatment of the acute abdomen.
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- Cumston, C. G. An introduction to the history of medicine.
N. Y. Knopf. 1926. 390 p.
- Delavan, D. B. Early days of the Presbyterian Hospital in the
City of New York.
N. Y. 1926. 191 p. 8'.
- Feinblatt, H. M. Transfusion of blood.
N. Y. Macmillan. 1926. 137 p.
- Feldman, M. H. A manual of exodontia.
Phila. Lea. 1926. 193 p.
- French, H., and Nuthall, T. Medical laboratory methods and
tests.
Chic. Chic. med. book co. 1926. 246 p.
- Galli, G. L'arteriosclerosi.
Milano. Vallardi. 1926. 492 p.
- Germany. Deutsches Arzneibuch. 6. Ausg. 1926.
Berlin. Decker. 1926. 854 p.
- Grimm, V. Das Asthma.
Jena. Fischer. 1925. 336 p.
- Grimmer, W. Lehrbuch der Chemie und Physiologie der Milch.
2. Aufl.
Berlin. Parey. 1926. 326 p.
- Hawk, P. B., and Bergeim, O. Practical physiological chemistry.
9. ed.
Phila. Blakiston. 1926. 931 p.

- Holt, L. E., and Howland, J. The diseases of infancy and childhood. 9. ed.
N. Y. Appleton. 1926. 1018 p.
- Hoppe, E. Gesichte der Physik.
Braunschweig. Vieweg. 1926. 536 p.
- Hopper, I. V., and Cumming, W. M. Practical organic chemistry.
London. Blackie. 1926. 115 p.
- Istituto sieroterapico Milanese. Dei sieri e vaccini dei preparati chemoterapici, opoterapici ed affini e dei diagnostici. 3. ed.
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- Jötten, K. W. Die Auskunftsstelle und Fürsorgestelle für Lungenkranke. 2. Aufl.
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- Jordan, H. E., and Kindred, J. E. A textbook of embryology.
N. Y. Appleton. 1926. 613 p.
- Kawamura, R. Neue Beiträge zur Morphologie und Physiologie der Cholesterinsteatose.
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- Kellogg, J. H. The itinerary of a breakfast.
N. Y. Funk. 1926. 202 p.
- Klinisches Lehrbuch der Inkretologie und Inkretotherapie.
Hrsg. von G. Bayer & R. von den Velden.
Leip. Thieme. 1927. 423 p.
- Kyrle, J. Vorlesungen über Histo-Biologie der menschlichen Haut und ihrer Erkrankungen. Band 2.
Wien. Springer. 1927.
- Lapp, J. A., and Ketcham, D. Hospital law.
Milwaukee. 1926. Bruce. 557 p.
- Logan, J. D. Dental prosthetics.
Edinb. Livingstone. 1926. 218 p.
- Marsden, P. H. Dental materia medica.
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- Masters, D. How to conquer consumption.
Lond. Lane. 1926. 251 p.
- McGowan, J. P. Pernicious anaemia, leucaemia and aplastic anaemia.
Lond. Lewis. 1926. 116 p.

Michel, R. Das Schmerzproblem und seine forensische Bedeutung.

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Morax, V. Cancer de l'appareil visuel.

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Mouriquand, G. Précis de diététique.

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Nankivell, J. W. H. Synopsis of hygiene and public health.

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Ostwald, W. Practical colloid chemistry.

Lond. Methuen. 1926. 191 p.

Palmer, L. S. Laboratory experiments in dairy chemistry.

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Parker, L. A. Materia medica and therapeutics. 4. ed.

Phila. Lea. 1926. 364 p.

Patten, C. J. The memory factor in biology.

Lond. Baillière. 1926. 174 p.

Pickerill, H. P. Stomatology. 2. ed.

Lond. Kimpton. 1926. 262 p.

Predieri, A. Compendio di traumatologia. 3. ed.

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Pütter, E. Einrichtung, Verwaltung und Betrieb der Krankenhäuser.

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de Quervain, F. Clinical surgical diagnosis. 4. ed.

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Rank, O. Technik der Psychoanalyse. v. 1.

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Schiff, E. Das autonome Nervensystem.

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Schönfeld, A., and Kraft, F. Die Erkrankungen der Harnblase im Röntgenbilde.

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Schmidt, V. Zur Tonsillenfrage.

Leip. Kabitzsch. 1926. 83 p.

Schröder, G., and Michelsson, F. Die chirurgische Behandlung der Lungentuberkulose.

Berlin. Fischer. 1926. 135 p.

- Sequeira, J. H. Diseases of the skin. 4. ed.
Lond. Churchill. 1927. 644 p.
- Smith, G. F. R. Dental anaesthesia.
Edinb. Livingstone. 1926. 159 p.
- Sollmann, T. A manual of pharmacology. 3. ed.
Phila. Saunders. 1926. 1184 p.
- Stone, C. T. The prostate gland.
N. Y. Ross. 1926. 109 p.
- Strauss, H. Die Nephritiden und nichtentzündlichen Nierenerkrankungen. 4. Aufl.
Berlin. Urban. 1926. 400 p.
- Streicher, H. Das Wahrsagen.
Wien. Springer. 1926. 162 p.
- Sudhoff, K. Geschichte der Zahnheilkunde. 2. Aufl.
Leip. Barth. 1926. 22 p.
- Taylor, D. General nursing questions and answers.
Lond. Faber. 1926. 168 p.
- Thomas, E. Inner Sekretion in der ersten Lebenszeit.
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- Transactions of the American neurological association.
Phila. 454 p.
- Van Slyke, D. D. Factors affecting the distribution of electrolytes, water and gases in the animal body.
Phila. Lippincott. 1926. 62 p.
- de Vincentiis, G. Manuale di oculistica.
Roma. Pozzi. 1926. 622 p.
- Walter, B. Die physikalischen Grundlagen der medizinischen Röntgentechnik.
Braunschweig. Vieweg. 1926. 333 p.
- White, W. A. The meaning of disease.
Balt. Williams. 1926. 220 p.
- Winter, L. A text-book of exodontia.
St. Louis. Mosby. 1927. 364 p.
- Zondek, H. Die Krankheiten der endokrinen Drüsen. 2. Aufl.
Berlin. Springer. 1926. 421 p.

RECENT ACCESSIONS TO THE LIBRARY, FEBRUARY

- Barrington, G. G. How to treat insomnia.
Lond. Lutterworth, [1926], 39 p.
- Barton, W. M., & Yater, W. M. Symptom diagnosis.
N. Y. Appleton, 1927, 851 p.
- Bödecker, C. F. Fundamentals of dental histology and embryology.
N. Y. Macmillan, 1926, 251 p.
- Bolduan, C. F. & Grund, M. Applied bacteriology for nurses.
5. ed.
Phila. Saunders, 1926, 1184 p.
- Bouquet, H. La médecine du temps présent.
Paris. Hachette, 1925, 256 p.
- Bradley, T. J. A laboratory manual of qualitative chemical analysis. 4. ed.
Phila. Lea, 1926, 184 p.
- Cameron, S. J. & Hewitt, J. Difficult labour.
Lond. Arnold, 1926, 300 p.
- Canuyt, G. & Terracol, J. Le sinus sphénoïdal.
Paris. Masson, 1925, 278 p.
- Conn, H. W. & Conn, H. J. Bacteriology.
Balt. Williams, 1926, 453 p.
- Cook, N. P. Instinct in the cell and organism.
Alhambra, Cal. Weimar pr., 1926, 244 p.
- Crossen, H. S. Diseases of women. 6. ed.
St. Louis. Mosby, 1926, 1005 p.
- Dally, J. F. H. High blood pressure. 2. ed.
N. Y. Wood, 1926, 196 p.
- Debré, R. & Joannon, P. La rougeole.
Paris. Masson, 1926, 288 p.
- Dubreuil-Chambardel, L. Les variations du corps humain.
Paris. Flammarion, 1925, 250 p.
- Duke, W. W. Allergy, asthma, hay fever, urticaria and allied manifestations of reaction. 2. ed.
St. Louis. Mosby, 1926, 344 p.
- Fereh, J. Birth control.
London. Williams, 1926, 123 p.
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- Finter, F. B. An introduction to physical chemistry.
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N. Y. Med. life pr., 1926.
- Fulton, J. F. Muscular contractions.
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Lond. Lewis, 1927, 172 p.
- Gibson, A. G. The Radcliffe infirmary.
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- Guillain, G. & Bertrand, I. Anatomie topographique du système nerveux central.
Paris. Masson, 1926, 321 p.
- Herxheimer, G. Stoffwechselkrankheiten.
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- Istituto sieroterapico Milanese. Neoplasmi.
Milano. Cura dell' Istituto . . . 1926, 327 p.
- Jaquerod, M. The natural processes of healing in pulmonary tuberculosis.
N. Y. Wood, 1927, 107 p.
- Johansson, S. Über die Knochen- und Gelenk-Tuberkulose im Kindesalter.
Jena. Fischer, 1926, 255 p.
- Johns Hopkins University. School of hygiene and public health.
De Lamas lectures, 1925-1926.
Balt. Williams, 1927, 220 p.
- Kerr, J. The fundamentals of school health.
Lond. Allen, 1926, 859 p.
- Leahy, M. P. The mind in disease.
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- Lehrbuch der Kinderheilkunde. Hrsg. von E. Feer. 9. Aufl.
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- Léri, A. Études sur les affections de la colonne vertébrale.
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- Leroux-Robert. La haute fréquence en oto-rhino-laryngologie.
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- MacKenty, J. E. Cancer of the larynx.
[s. l. 1926], 63 p.
- Mayer, E. Clinical application of sunlight and artificial radiation.
Balt. Williams, 1926, 468 p.
- Murray, J. W. Examination of the patient and symptomatic diagnosis.
St. Louis. Mosby, 1926, 841 p.
- Nature (The) of the world and of man. By W. C. Allee [et al.]. Ed. by H. H. Newman.
Chic. Univ. of Chic. pr., 1926, 566 p.
- Nursing in diseases of the eye, ear, nose and throat. Ed. by H. Smith. 4. ed.
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- Palfrey, F. W. [et al.]. The specialties in general practice.
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Lond. Churchill, 1926, 676 p.
- Parsons, P. A. Crime and the criminal.
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- von Peham, H. & Katz, H. Die instrumentelle Perforation des graviden Uterus und ihre Verhütung.
Wien. Springer, 1926, 204 p.
- Prinz, H. Dental materia medica and therapeutics. 6. ed.
St. Louis. Mosby, 1926, 632 p.
- Redding, J. M. X-ray diagnosis.
Lond. Cassell, 1926, 228 p.
- Rice, T. B. The conquest of disease.
N. Y. Macmillan, 1927, 363 p.
- Rideal, E. K. & Taylor, H. S. Catalysis in theory and practice.
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- Schlesinger, H. Syphilis und innere Medizin. Th. 1-2.
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- Shull, A. F. Heredity.
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- Sumner, J. B. Textbook of biological chemistry.
N. Y. Macmillan, 1927, 283 p.
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- Wallace, J. S. Variations in the form of the jaws.
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- Wassermann, S. Neue klinische Gesichtspunkte zur Lehre vom
Asthma cardiale.
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- Wilder, R. M. A primer for diabetic patients. 3. ed.
Phila. Saunders, 1927, 134 p.
- Wood, T. D. & Hendriksen, E. M. Ventilation and health.
N. Y. Appleton, 1927, 210 p.
- Woodbury, R. M. Infant mortality.
Balt. Williams, 1926, 204 p.
- Youngken, H. W. A textbook of pharmacognosy. 2. ed.
Phila. Blakiston, 1926, 700 p.
- Zwaardemaker, H. L'odorat.
Paris. Doin, 1925, 305 p.

THE EDWARD N. GIBBS MEMORIAL PRIZE FUND

The income of this fund, amounting to approximately \$1,000 annually for three years, is available for research upon diseases of the kidney.

Workers in properly equipped laboratories desiring to apply for a grant in this fund may make application to the Committee of the Edward N. Gibbs Memorial Prize Fund, The New York Academy of Medicine, Fifth Avenue and 103rd Street, New York City.

NEW ACADEMY COMMITTEES

The Council reports to the Academy that it has appointed a committee consisting of Dr. Hartwell, Chairman, Drs. Beekman, Carter, Milliken, Moorhead and Wightman, to revise the Constitution and By-Laws. This committee has had a series of meetings and will probably recommend some minor changes in the By-Laws.

The Council has also appointed a committee consisting of Drs. McKernon, Park, Duel, Sachs and Wallace to consider the possible future unfortunate results to the practice of medicine, which might grow out of the restrictions on medical practitioners as evidenced by the decision of the Supreme Court in regard to Article VII of the Volstead Act in restricting the rights of physicians in prescribing spirituous liquors for patients. This matter will be given the most careful consideration and be discussed thoroughly by the Council before any opinion is rendered to the Academy.

The Trustees have appointed a special Finance Committee consisting of Drs. Lambert, Miller, Pool and Milliken, which expects to seek the advice of several business men and bankers as to the investing of the Academy's funds. This action has been taken in anticipation of the final payment on the sale of the 43rd Street property which will provide approximately \$500,000 for immediate investment, and the anticipation of the Rockefeller Foundation payment on account of its appropriation of a million and a quarter during 1928, 1929 and 1930.

CATALOGUE OF AN EXHIBITION OF WORKS IN THE PLASTIC AND GRAPHIC ARTS BY AMERICAN PHYSICIANS

THE FIRST EXHIBITION HELD AT THE NEW YORK ACADEMY
OF MEDICINE, FIFTH AVENUE AND ONE HUNDRED AND
THIRD STREET, NEW YORK, MARCH 1ST TO 15TH, 1927

INTRODUCTION

BY SAMUEL LAMBERT, M.D.

President of The New York Academy of Medicine

The activities of the members of the Medical Profession in literature and art form a side light on the lives of busy men which is very seldom brought to public view. It is more unusual to associate the profession with achievement in art than with success in literary or musical work. Many physicians have been skilled performers in music and some have become so famous in English literature that the lay public hardly knows that they were physicians at all. The careers, for example, of Oliver Wendell Holmes, Oliver Goldsmith, Tobias Smollett, were those of literary geniuses rather than of medical practitioners.

The present exhibition is a first effort to put on public view the work of contemporary American physicians in the plastic and graphic arts. It is by no means an attempt to be complete, but an earnest effort to draw from the whole country has succeeded in bringing together examples from the far West as well as from the nearer cities of the East. It is an exhibition collected in New York and therefore a majority of the exhibits are from this city. It is hoped that subsequent exhibitions will follow and that a larger representation from the general profession can be gotten together. That busy doctors can find time to acquire the skill of the Edwards shown in the Academy of Medicine at this Academy of Medicine is the most important fact that makes for health and New York City. Every man and woman should find a hobby of business and of home living. And this hobby should have an absorbing interest and preferably a creative effort.

LIST OF WORKS

DR. ROBERT ABBE (New York City)

- 1 Head of Somes Sound Foggy Day—Water color.
- 2 A Corner in My Office—Water color.
- 3 "Brook End," Bar Harbor—Water color.
- 4 Mushrooms—Water color.

DR. A. C. ABBOT (Philadelphia)

- 5 Summer Sky Over Vineyard Sound—Oil.
- 6 Indian Summer on the Schuylkill—Oil.
- 7 Cherry Blossom Time—Oil.
- 8 Ogunquit Dunes Beach—Oil.
- 9 Company—Shop Pond—Oil.
- 10 Drifting Fog—Maine Coast—Oil.

DR. FREDERICK ADAMS (Seattle)

- 11 Landscape—Oil.
- 12 Winter Scene—Oil.

DR. DAVID I. ARBUSE (New York City)

- 13 Museum of Art—Drawing.
- 14 Washington Arch—Drawing.
- 15 Hall of Fame—Drawing.
- 16 World Tower—Drawing.
- 17 Supreme Court Building—Drawing.
- 18 President Wilson—Drawing.
- 19 Salome—Drawing.
- 20 Madonna and Jesus—Drawing.
- 21 Drawing.
- 22 Drawing.
- 23 Sketch.
- 24 Sketch.

DR. ALFRED J. ASGIS (New York City)

- 25 Portrait of Dr. George W. Mackenzie—Oil.
- 26 Portrait of Dr. Mary K. Baker—Oil.
- 27 Alone—Oil.

DR. JAMES C. AYER (New York City)

- 28 My Studio—Oil.
- 29 Interior—Oil.
- 30 Portrait Study, "Franya"—Oil.
- 31 Portrait Study, "Sally"—Oil.
- 32 Portrait Study, "Sally"—Oil.
- 33 Portrait Study, "Rosalie"—Oil.
- 34 Figure Study, "Carmen"—Oil.
- 35 Still Life—Oil.
- 36 Self Portrait—Oil.

DR. HENRY A. BANCEL (New York City)

- 37 Fishing Boat, Montauk—Water color.
- 38 Palisades, Hudson River—Water color.
- 39 Marshes, Hudson River—Water color.

- 40 Beach at Montauk.—Water color.
- 41 Cedar Trees, Barnegat—Water color.
- 42 Still Life—Water color.

DR. BENJAMIN S. BARRINGER (New York City)

- 43 "The Spaniards," Hampstead Heath—Oil.
- 44 Thatched Cottage, Golders Green—Oil.
- 45 The Lane, Kinderhook—Oil.
- 46 Old Well House—Oil.
- 47 Apple Trees—Oil.
- 48 Lazaretgasse, Vienna—Pastel.
- 49 Late Fall—Pastel.
- 50 Winter's Afternoon—Pastel.

DR. EMILY DUNNING BARRINGER (New York City)

- 51 Ground Plan of Country House—Photograph.
- 52 Views of Exterior—Photograph.
- 53 Views of Interior—Photograph.

DR. WILLIAM ALLEN BARTLETT (N. Y. City, Deceased)

(Loaned by Mrs. Bartlett)

- 54 The Promised Land—Oil.
- 55 The Whispering Palms—Oil.
- 56 His Bridge—Oil.
- 57 A Painted Ship—Oil.
- 58 Across the Fields—Oil.
- 59 Autumn Skies—Oil.

DR. S. BAUCH (New York City)

- 60 Landscape with Spire, Woodstock, N. Y.—Oil.
- 61 Spring, Apple Blossom, Woodstock, N. Y.—Oil.
- 62 Santa Barbara Mountain—Oil.
- 63 Early Autumn, Woodstock—Oil.
- 64 Late Autumn, Woodstock—Oil.
- 65 Portrait—Oil.
- 66 Woods—Oil.
- 67 Cherry Orchard (Loaned by Muriel Hannah)—Oil.
- 68 Landscape with Cow—Oil.
- 69 Portrait—Mother—Oil.
- 70 Portrait of a Lady (Loaned by Pauline J. Zelman)—Oil.
- 71 Mid-Summer Landscape—Oil.
- 72 Manilla Landscape—Oil.
- 73 Still Life—Oil.
- 74 Portrait of a Basque (Loaned by Pauline J. Zelman)—Oil.
- 75 Portrait—Pastel.
- 76 Sunset—Water Color.
- 77 Maple Tree in Autumn—Oil.
- 78 Still Life (Loaned by A. Faggi)—Oil.

DR. NATHAN RERGER (New York City)

- 79 Portrait—(Mrs. Ida Berger)—Sculpture.

DR. ADOLF BONNER (Brooklyn)

- 80 Still Life—Oil.
- 81 Still Life—Oil.
- 82 Portrait of Mrs. Bonner—Oil.

DR. ALFRED BROWN (Omaha)

83-88 Book Plates.

DR. AMASA DAY CHAFFEE (New York City)

- 89 Rivington Street, N. Y.—Photograph.
- 90 Breton Road—Photograph.
- 91 Douarnenez—Finistere—Photograph.
- 92 Auray—Finistere—Photograph.
- 93 Chinon—Indre-et-Loire—Photograph.

DR. CLARENCE DE LA CHAPELLE (New York City)

- 94 University and Bellevue Hospital Medical College (Loaned by the College).
- 95 King of the Air—Drawing.
- 96 Old Faithful—Drawing.
- 97 "Attention"—Drawing.
- 98 Ralph—Drawing.
- 99 Design for Personal Book-Plate—Drawing.

DR. ROCKWELL A. COFFIN (Boston)

- 100 Two Geese—Dry Point.
- 101 Evening—Dry Point.

DR. MILTON COHEN (New York City)

- 103 Boy and Pelican—Sculpture.
- 104 Sunrise—Sculpture.
- 105 Fountain Group—Sculpture.

DR. SOLIS S. COHEN (Philadelphia)

- 106 The Emancipator—Portrait Head—Oil.
- 107 By the Lake—Oil.
- 108 By the Lake—Oil.
- 109 Out of My Window—Pastel.
- 110 Out of My Window—Pastel.
- 111 Out of My Window—Pastel.

DR. FRED J. COTTON (Boston)

- 112 Whippets at Play—Sculpture.
- 113 Portrait of Mrs. Barnard Prince—Sculpture.
- 114 Girl Reading—Sculpture.
- 115 The Elderly Faun—Sculpture.
- 116 Two Pencil Drawings.
- 117 Three Charecoal Drawings.
- 118 Pen Drawing.
- 119 Rising Sun Tavern—Vignette.
- 120 Baldwin Memorial Church—Vignette.
- 121 Portrait of Dr. John Ridlon (Loaned by Dr. Nat. Allison)—
Crayon drawing.
- 122 Speaker of the Evening (Loaned by Mr. Walter C. Howe)—Pen
drawing.
- 123 The Cobalt Corner, "Clyde River"—Water color.
- 124 Square Tail and Parmachenee—Water color.
- 125 Illustrations, "Wall-Eyed Caesar's Ghost."

DR. CHARLES L. DANA (New York City)

- 126 The Contribution of Doctors to the Art of Poetry.
- 127 The Contribution of a Doctor (Dr. C. L. Dana) to the Art of Book-Making.
- 128 The Contribution of a Doctor (Dr. C. L. Dana) to the Art of Translating and Pictorially Interpreting Poetry.

DR. A. T. DEBON (New York City)

- 129 Bowl—Pottery.

DR. H. C. DENMAN (Brooklyn)

- 130 A Spanish Garden—Drawing.
- 131 Going to Market—Drawing.
- 132 A Church Door—Drawing.

DR. ROBERT L. DICKINSON (New York City)

- 133 Stateliness and Color in Chinese Ships.
- 134 A Foochow Pole Junk.
- 135 A Hangkow Trader.
- 136 A Canton North River Boat with Masts Meeting Aloft.
- 137 Stenography in Color.
- 138 The Near East and North and South Europe.
- 139 Leaves from Sketch Books of the Far East.
- 140 The Stenography of Faces.
- 141 Outlines for One's Card Catalog of People.
- 142 Book Plates for Hospitals and Doctors.
- 143 Panoramas From My Walkbooks.
- 144 The Palisades.
- 145 The New York and the Washington Books.
- 146 Keeping New York Wild—In Its Parks.
- 147 Selection From a Series of Drawings.
- 148 Oaks of Quogue, Long Island.
- 149 The Sweep of Woods Hole, Cape Cod.
- 150 A Montauk Sunset.
- 151 The Hedge Patterns of Devonshire at Totnes.
- 152 The Oldness of Bergen in Norway.
- 153 The Setting of Peking as Seen From the Western Hills.

DR. VERA B. DOLGOPOL (New York City)

- 154 Sea Gate—Pastel.
- 155 Sea Gate—Pastel.
- 156 Staten Island—Pastel.

DR. G. DUNAIF (Brooklyn)

- 157 Mother—Bronze.

DR. P. T. ERICKSON (Mt. McGregor, N. Y.)

- 160 Spring Green on Mt. Baker—Oil.
- 161 "Winter Sunshine"—Oil.

DR. GEORGE R. ELLIOT (New York City)

- 162 George Washington—Relief.

DR. H. FISCHER (New York City)

- 163 Guardians of the Pool—Oil.
- 164 Bronx River, N. Y.—Oil.
- 165 Trout Brook in the Berkshires—Oil.
- 166 October Morning—Oil.
- 167 Silent Places—Oil.
- 168 Still Life—Oil.
- 169 Gay Head, Martha's Vineyard—Oil.
- 170 "The Watchman," Arches Canyon, Utah—Water color.
- 171 "God's Fingers," Arches Canyon, Utah—Water color.
- 172 "Devil's Garden," Arches Canyon, Utah—Water color.
- 173 "Castle Arch," Arches Canyon, Utah—Water color.
- 174-194 Etchings.
- 195 Screen.

DR. ALPHEUS FREEMAN (New York City)

- 196 The Harbor—Barnegat City—Water color.
- 197 Central Park—Water color.
- 198 In the Crypt—Westminster Abbey—Water color.
- 199 A Lazy Surf—Water color.
- 200 Caretakers Cottage—Killarney—Water color.
- 201 The Harbor—Barnegat City—Water color.
- 202 Barnegat Light—Water color.
- 203 Lake Hill—Catskills—Water color.
- 204 Central Park—Water color.
- 205 Barnegat Light—Water color.
- 206 Channel Bass—Water color.
- 207 Old Church at Navesink—Water color.
- 208 At Harvey Cedars—Water color.
- 209 Long Beach Club—Barnegat—Water color.
- 210 Fishing Tackle—Water color.
- 211 Fishing Tackle—Water color.

DR. A. H. FRIDENBERG (New York City)

- 212-223 Studies of Brook Trout—Water colors.

DR. PERCY FRIDENBERG (New York City)

- 224 Winter Harbor Cliffs—Water color.
- 225 Hackensack Meadows, Winter—Pastel.
- 226 Covered Way, Rothenburg—Pastel.
- 227 Sea and Sky—Gardiner's Bay—Pastel.
- 228 Nude—Pastel print.
- 229 The Runaway Girl—Pastel print.
- 230 Die kleine Gasse—Pastel print.
- 231 Nude Reclining—Pastel print.
- 232 Columbia College—Early 80's—6 subjects—Lithograph.
- 233 Sunset Weehawken—Lithograph.
- 234 White Sloop, Greenport—Lithograph.
- 235 Patchogue Harbor—Lithograph.
- 236 Dawn—Lithograph.
- 237 Gas House Dock—Etching.
- 238 White Schooner—Etching.
- 239 Shelter Island Heights—Etching.
- 240 Claremont, North River Dock—Etching.
- 241 Central Park, Fifth Avenue—Etching.
- 242 The Headland—Etching.

- 243 The Sloop—Etching.
- 244 Patchogue Harbor—Drawing.
- 245 Sunset—Drawing.
- 246 Weehawken—Drawing.
- 247 Gloucester Shore—Drawing.
- 248 The Diver—Drawing.
- 249 Designs and Plates of Ex Libris.

DR. ARPAD GERSTER (New York City, Deceased)

- 250 Portrait of Himself (Loaned by Dr. Dana)—Oil.
- 251 Long Lake—Oil.
- 252 Arecibo Valley—Oil.
- 253 Boat House—Oil.
- 254 Mississippi Houseboat—Oil.
- 255 Split—Rock Cove—Oil.
- 256 Long Lake—Oil.
- 257 Chinaman—Etching.
- 258 John Geis'er—Etching.
- 259 End of Carry—Etching.
- 260 Beethoven Study—Etching.
- 261 Old Tramp—Etching.
- 262 Old Forge—Etching.
- 263 Group of Six—Etching.
- 264 John Gerster—Etching.
- 265 Raequette Lake Point—Etching.
- 266 Dawn at Nassau—Etching.
- 267 Dawn—Etching.
- 268 Verdasz—Etching.
- 269 Sunset on the Cliff—Drawing.

DR. GEORGE GRAY (Hyannis, Mass.)

- 270 Popponessett—After the Sun Goes Down—Pastel.
- 271 Nahaut Bay—A Little Thick Outside—Pastel.

DR. ISIDOR NADLE (New York City)

- 272 Genevieve Tobin.
- 273 Dr. Ramon Guiteras.
- 274 Gertrude Reynold.
- 275 Geraldine Farrar.
- 276 Viola Graham.

DR. JAMES PARTON HANEY (New York City, Deceased)

- 277 Ogunquit Fish-Houses (Loaned by Kate Haney)—Water color.
- 278 Bridge Over the Ogunquit River (Loaned by Kate Haney)—Water color.
- 279 Perkin's Cove, Ogunquit (Loaned by Kate Haney)—Water color.
- 280 The Bridge (Loaned by School Art League)—Drawing.
- 281 The Willows (Loaned by School Art League)—Drawing.
- 282 A Fishing Village (Loaned by School Art League)—Drawing.
- 283 Breaking Waves (Loaned by School Art League)—Drawing.
- 284 Fish Houses at Ogunquit (Loaned by Newark Museum)—Water color.

DR. W. MORGAN HARTSHORN (New York City)

- 285 Four Sketches of St. Andrews, N. B.
- 286 Woodmont Shore, Woodmont, Conn.

- 287 Woodmont Pasture, Woodmont, Conn.
- 288 Rock of Gibraltar from the Ship.
- 289 Still Life.
- 290 Obelisk in Central Park.
- 291 The Pool.

DR. WARD A. HOLDEN (New York City)

- 292 to 299 Sea Shore Sketches—August—Pastel.

DR. I. SETH HIRSCH (New York City)

- 300 Nareissus—Sculpture.
- 301 Cytherea—Sculpture.
- 302 A Study—Sculpture.
- 303 O. P. D. (Out-Patient-Department)—Sculpture.
- 304 A Study—Sculpture.

DR. LEIGH HUNT (New York City)

- 305 Evening in Normandy (Rousseau)—Etching.
- 306 The Silvery Thames—Lithograph.
- 307 Laarren—Aquatint.
- 308 Brunel's Bridge, Plymouth, Devon—Oil.
- 309 Early Morning off Rotterdam—Etching.
- 310 Old Dutch Woman—Etching.
- 311 Alkmaar—Etching.
- 312 A Canal in the Ghetto—Etching.
- 313 Pool Below London Bridge—Etching.
- 314 Les Grandes Malades—On the Meuse—Etching.
- 315 Putney-on-Thames—Etching.

DR. JOHN E. HUTTON (New York City)

- 316 Marine—Water color.
- 317 Study of a Baby's Head—Water color.

DR. CHARLES H. JAEGER (New York City)

- 318 The House in the Woods—Photograph.
- 319 The Day is Done—Photograph.
- 320 Sweepers of the Sea—Photograph.
- 321 In Kew Gardens, London—Photograph.
- 322 Streamers—Photograph.
- 323 Gateway—Dinan—Photograph.

DR. CHAS. L. JANSSEN (New York City)

- 324 Portrait—Oil.
- 325 Window—Oil.
- February—Oil.

DR. ARTHUR JOHNEN (New York City)

- 326 Small Head (Mrs. A. Johnen)—Sculpture.
- 327 Moonlight—Oil.
- 328 Summer Day—Oil.
- 329 The Approaching Storm—Oil

DR. DAVID M. KAPLAN (New York City)

- 330 Still wie die Nacht—Water color.
- 331 L'Heure Exquise—Water color.

- 332 Daddy—Water color.
- 333 Le Jour De Gloire—Water color.
- 334 The Silent North—Water color.
- 335 Bernice's Comb—Water color.
- 336 Crepusculo—Water color.
- 337 He Is There—Water color.
- 338 Whither, Whence?—Water color.
- 339 Hail, Alaska—Water color.
- 340 Christmas—Water color.
- 341 Maine—Water color.

DR. THERON WENDELL KILMER (New York City)

- 342 Charles Gilmore Kerley, M. D.—Photograph.
- 343 Henry Koplik, M. D.—Photograph.
- 344 A. Jacobi, M. D.—Photograph.
- 345 An Old Model—P'
- 346 Virgil P. Gibney, "

DR. ROBERT KOCH (Brooklyn)

- 347 Example of Hand-Made Marquetry Containing 16,600 Pieces of 30 Varieties of Natural Woods.
- 348 Example of Hand-Made Marquetry Containing 8,458 Pieces of 51 Varieties of Natural Woods.
- 349 Example of Hand-Made Marquetry Containing About 1,700 Pieces of Many Varieties of Natural Woods.

DR. B. LIBER (New York City)

- 350 "As a Doctor Sees It"—(Original drawings illustrating the author's book).
- 351 Sketches From My European Trip.
- 352 Other Sketches.

DR. FERDINAND McHALE (New York City)

- 353 The Boston Clipper—Oil.
- 354 Old Frigate—Oil.
- 355 They Call Me Satan—Water color.
- 356 Second Fall of Christ on the Road to Golgotha—Water color.
- 357 Street in Pompeii—Water color.
- 358 Chinese Junker and the Poppy—Water color.

DR. R. TAIT McKENZIE (Philadelphia)

- 359 The Sprinter, $\frac{1}{4}$ life size—Sculpture.
- 360 The Plunger, $\frac{1}{2}$ life size—Sculpture.
- 361 Effort—Sculpture.
- 362 Breathlessness—Sculpture.
- 363 Fatigue—Sculpture.
- 364 Exhaustion—Sculpture.
- 365 Medallion, Joy of Effort—Sculpture.
- 366 Medallion, Portrait of Chevalier Jackson—Sculpture.
- 367 Medallion, The Gerhardt Medal—Sculpture.
- 368 W. W. Keen, Portrait—Sculpture.
- 369 Wei Mitchell—Sculpture.
- 370 Aesculapius Medal—Sculpture.
- 371 Walt Whitman Medal—Sculpture.
- 372 Sketch Club Medal (cast)—Sculpture.
- 373 Lenape Club Medal (cast)—Sculpture.

Sir Robert Jones—Sculpture.
 Wilfred Grenfell—Sculpture.

DR. A. R. McMICHAEL (New York City)

- 374 Lincoln—Sculpture.
- 375 Lincoln—Drawing.

DR. WALTER MENDELSON (Philadelphia)

- 376 A Long Case Clock Movement, the Face Executed in Metal and Illustrating the Heraldry of New York.
- 377 Silver Jewelry, Consisting of Two Silver Bracelets in the Hindu Style, and of Two Silver Necklaces.

DR. HENRY MINSKY (New York City)

- 378 Landscape—Oil.
- 379 Landscape—Oil.
- 380 Landscape—Oil.

DR. HENRY N. MOELLER (New York City)

- 381 Portrait of Alice Louise Moeller—Sculpture.
- 382 Polo Group—Sculpture.
- 383 Moose—Sculpture.
- 384 Small Replica of Memorial Tablet Erected in Havana, Cuba, on the House in Which Doctor Elisha Kent Kane, U. S. A., Arctic Explorer, Died—Sculpture.
- 385 Partridge Hunting—Oil.

DR. HARRIS P. MOSHER (Boston)

- 386 The Mayflower in Marblehead Harbor—Oil.
- 387 Mother Submarine and Submarines—Oil.
- 388 Flower Piece—Oil.
- 389 The Market Place, Halle, Germany—Pencil drawing.
- 390 Puppet Heads—Plastic wood.
- 391 Alice—Plastic wood.
- 392 The Mad Hatter—Plaster.
- 393 The Duchess—Plaster.
- 394 The White Queen—Book Ends—Pair—Plaster.
- 395 The Mad Hatter—Plaster.
- 396 The Duchess—Statuettes—Plastic wood.
- 397 The Village Idiot—Plastic wood.
- 398 Mrs. Mosher's Dog—Plastic wood.
- 399 The Little Dog Who Wouldn't Wag His Tail—Plastic wood.
- 400 Mr. L.—The Sculptor—Plastic wood.
 (Costumes by Mrs. Mosher).
- 401 Mrs. Mosher—Plastic wood.

DR. J. K. MOSSMAN (New York City)

- 402 Leopard—Sculpture.
- 403 Black Leopard—Sculpture.
- 404 Torso of Fighter—Sculpture.

DR. EDWARD H. MUNCIE (Brooklyn, Deceased)

- 405 Under Full Sail—Oil.
- 406 Sunset—Pastel.
- 407 Lake Superior—Pastel.

DR. ARTHUR NILSIN (New York City)

- 410 The Acrobat—Photograph.
- 411 Gossips—Photograph.
- 412 Araby—Photograph.
- 413 The Earring—Photograph.
- 414 The Hallway—Photograph.
- 415 Under Control—Photograph.

DR. RUSSELL BURTON-OPITZ (New York City)

- 416 Maple Leaves—Drawing.
- 417 A Water Fall—Drawing.
- 418 On the Palisades—Drawing.
- 419 Roses—Drawing.
- 420 Almhutte—Drawing.
- 421 Swiss House—Drawing.
- 422 Alpengluehen—Oil.
- 423 Italian House (Copy)—Oil.

DR. GEORGE HOWARD PIERCE (New York City)

- 424 Grand Canal, Venice Harbor—Oil.
- 425 After Raffaelli.
- 426 November.
- 427 After.
- 428 The Mill.
- 429 Houses and Street—Tuck Postal Card.
- 430 The Brook—Drawing.
- 431 Houses on the Barren Outskirts—Drawing.
- 432 Spreading Tree by the Winding Road—Drawing.
- 433 The Lake—Drawing.
- 434 Edge of the Forest—Drawing.
- 435 Within the Woodland—Drawing.
- 436 Road and River—Neighbors—Drawing.
- 437 Country Homeside—Drawing.
- 438 Roadside and River—Drawing.
- 439 Impressionistic—Drawing.
- 440 The River Bank—Drawing.
- 441 Park Foliage—Drawing.
- 442 The Field—Drawing.
- 443 Rough Country—Drawing.
- 444 Houses by the River—Drawing.
- 445 Shack by the Sea—Drawing.
- 446 Trees—Riverbank—Drawing.
- 447 Springtime—Colored crayons.
- 448 Sunset—Colored crayons.
- 449 Summer—Colored crayons.
- 450 Creek Through the Meadow—Oil.
- 451 Rocky Suffern Hills—Oil.
- 452 Twilight Mist—Suffern Hills—Colored crayons.

DR. H. J. PATTERSON (New York City)

- 453 Ramapo Hills, Spring—Water color.
- 454 Ramapo Hills, Summer—Water color.
- 455 Ramapo Hills, Summer—Water color.
- 456 Ramapo Hills, Autumn—Water color.
- 457 Ramapo Hills, Winter—Water color.
- 458 Ramapo Hills, Winter—Water color.

- 459 Washington, Conn., Winter—Water color.
- 460 Washington, Conn., Winter—Water color.
- 461 Montana Stillwater Valley—Water color.
- 462 Montana Beartooth Mountains—Water color.
- 463 Montana Beartooth Mountains—Water color.

DR. F. PETERSON (New York City)

- 464 The Old Mill—Water color.
- 465 Autumn Storm—Water color.
- 466 A Glimpse of Zoroaster—Water color.
- 467 Haunt of the Wild Geese—Water color.
- 468 The Port of Missing Men—Water color.

DR. LOUIS RACHLIN (Brooklyn)

- 469 The Gypsy Fortune Tellers (Outdoors)—Oil.
- 470 The Gypsy Fortune Tellers (Indoors)—Oil.
- 471 In Ecstasy—Oil.

DR. CARL J. ROLLEFSON (Superior, Wis.)

- 472 An Evening Study—Oil.

DR. D. J. RUZICKA (New York City)

- 473 The Stygian Grove—Photograph.
- 474 Pennsylvania Station—Photograph.
- 475 Oria on Lake Lugano—Photograph.
- 476 A Venetian Byway—Photograph.
- 477 Prague in Winter—Photograph.

DR. HERMANN SCHLAFF (Philadelphia)

- 478 Still Life—Oil.
- 479 Still Life—Oil.
- 480 Landscape, Oak View, Pa.—Oil.
- 481 Landscape, October, Addington, Pa.—Oil.

DR. J. E. SWEET (New York City)

- 482 11 Pieces of Jewelry, Showing the Art of Casting in Silver and Gold.
- 483 2 Pieces Showing the Art of Hammering Copper.
- 484 2 Pieces Showing the Use of the Lathe in Turning Metals.
- 485 3 Photographs Showing the Art of Cobblestone and Concrete Work.

DR. KENNETH TAYLOR (New York City)

- 486 La Plage—Oil.
- 487 Cannes—Oil.
- 488 Queensboro Bridge—Oil.
- 489 Paris—Oil.
- 490 Pont Neuf—Oil.
- 491 Pont Du Carrousel—Oil.
- 492 Willows—Oil.
- 493 Still Life—Oil.
- 494 Pont Neuf "2nd"—Oil.

DR. WILLIAM S. THOMAS.

- 495 to 497 3 Boxes—Wood carving.

DR. FERNAND VISZTREICH (New York City)

- 498 Portrait—Drawing.
- 499 Still Life—Pastel.

DR. MICHAEL J. VASSEL (New York City)

- 500 After the Battle—Oil.
- 501 Algerian Jewess—Oil.
- 502 Turkish Gypsy Girl—Oil.
- 504 Sunset—Oil.
- 505 The Secret—Oil.

DR. KARL VOGEL (New York City)

- 506 U. S. Frigate Constitution, Scale Model, $\frac{1}{8}$ Inch to the Foot.

DR. RICHARD G. WIENER

- 507 Cherries and a Yellow Crock—Oil.
- 508 Apples and Pinks—Oil.
- 509 Bananas—Oil.
- 510 A Piece of Faience—Oil.

DR. MAX WOLF (New York City)

- 511 Self Portrait—Oil.
- 512 Goats—Oil.
- 513 Dr. Mary D. Rose—Etching.
- 514 Dr. James S. Eunis—Etching.
- 515 Dr. James F. McDonald—Etching.
- 516 Dr. A. Shackle—Etching.
- 517 Dr. Wilhelm Ostwald—Etching.
- 518 Rev. E. Tivnan, S. J.—Etching.
- 519 Rev. M. Tully, S. J.—Etching.
- 520 Friedrich Nietzsche—Etching.
- 521 Miss M. Butts—Etching.
- 522 Miss M. King—Etching.
- 523 Mr. E. L.—Etching.
- 524 Exhibit of Different Stages of the Process of Etching.

DR. LEROY MILTON YALE (Deceased)

- 525 Larchmont Manor—August Twilight—Etching.
(Loaned by Dr. Bryson Delavan)

DR. CHEVALIER JACKSON (Philadelphia)

- 526 Ohio River Hills—Oil.
- 527 Across the River—Oil.
(From "the old shoe," home of Chevalier Jackson)
- 528 Old Man's Garden—Oil.
- 529 October—Oil.
- 530 Harvest—Oil.
- 531 Lone Poplar—Oil.
- 532 Old Sunrise Mills—Etching.
- 533 Corduroy Road—Oil.
- 534 The Millwright—Print.
- 535 Cobbs Creek—Chalk drawing.

DR. EDGAR BURKE (Jersey City, N. J.)

- 536 Chinese Ring-Necked Pheasants—Water color.
- 537 American Widgeon—Water color.

- 538 Blue-Winged Teal—Water color.
- 539 Sanderling Flying Over Surf—Water color.
- 540 Blue-Winged Teal in October—Water color.

DR. J. A. McCREEDY

- 541 Mrs. James A. McCreedy—Sculpture.
- 542 Self Portrait—Sculpture.
- 543 St. John—Sculpture.
- 544 The Christ—Sculpture.
- 545 The Christ—Sculpture.

FELLOWS ELECTED FEBRUARY 3, 1927

- Benjamin N. Berg, M.D., 370 Fort Washington Ave.
 Oswald H. Boltz, M.D., Manhattan State Hosp., Ward's Island.
 Samuel Brock, M.D., 943 Lexington Avenue.
 William A. Dwyer, M.D., 99 Park Ave., Paterson, N. J.
 Louis Gross, M.D., 128 Fort Washington Ave.
 Arthur F. Kraetzer, M.D., 39 West 55th Street.
 Luther B. McKenzie, M.D., 114 East 66th Street.
 Lewis Theodore Mann, M.D., 50 West 84th Street.
 Arthur M. Master, M.D., 124 East 61st Street.
 John Miller, M.D., 253 East 48th Street.
 Giuseppe Previtali, M.D., 1103 Park Avenue.
 Will Cook Spain, M.D., 361 Park Avenue.
 William Ridgely Stone, M.D., 118 East 54th Street.
 James M. Sturtevant, M.D., 300 West End Avenue.
 Benediet Patriek Willis, M.D., 23 Park Ave., Rutherford, N. J.
 Asher Winkelstein, M.D., 333 West End Avenue.

FOR ASSOCIATE FELLOWSHIP

- Aliee E. Paulsen, A.B., A.M., 15 Merriam Avenue, Bronxville, N. Y.
 Leuman M. Waugh, D.D.S., 576 Fifth Avenue.

FELLOWS ELECTED MARCH 3, 1927

- Horace Strow Baldwin, M.D., 33 East 61st Street.
 F. Warner Bishop, M.D., 1148 Fifth Avenue.
 J. Leon Blumenthal, M.D., 348 Central Park West.
 Frank C. Combes, Jr., M.D., 80 West 40th Street.
 Joseph Edward Connery, M.D., 75 East 55th Street.

Nelson Warren Cornell, M.D., 173 East 85th Street.
 Howard Reid Craig, M.D., 34 East 75th Street.
 Edward Henry Dennen, M.D., 125 West 76th Street.
 Haynes Harold Fellows, M.D., 16 Park Avenue.
 Arthur Maurice Fishberg, M.D., 1136 Fifth Avenue.
 Paul Briece FitzGerald, M.D., Professional Building, New
 Rochelle.

Gilbert Edmund Haggart, M.D., 34 East 51st Street.
 Clement J. Halperin, M.D., 641 High Street, Newark, N. J.
 Louis Hausman, M.D., 1175 Park Avenue.
 Frederick B. Humphreys, M.D., 61 Summer St., Forest Hills,
 L. I.

William Thomas Kennedy, M.D., 163 East 61st Street.
 Walter C. Klotz, M.D., 21 East 10th Street.
 Martin J. Loeb, M.D., 1475 Grand Concourse.
 William Henry Lohman, M.D., 472 Washington Avenue,
 Brooklyn.

George Craig Ludlow, M.D., 13 East 65th Street.
 William Russell MacAusland, M.D., 240 Newbury Street,
 Boston, Mass.

Maurice Rashbaum, M.D., 143 West 73rd Street.
 Julian Leo Rogatz, M.D., 112 East 74th Street.
 George Louis Rohdenberg, M.D., 905 West End Avenue.
 William Logie Russell, M.D., White Plains, N. Y.
 Albert Vander Veer, Jr., M.D., 158 East 74th Street.
 John Ross Whisenant, M.D., 30 East 40th Street.
 W. Laurenee Whittemore, M.D., 21 East 66th Street.
 Ira Wilens, M.D., 1274 Fifth Avenue.

FOR ASSOCIATE FELLOWSHIP

Sigmund W. A. Franken, D.D.S., 36 East 40th Street.
 Leo Green, D.D.S., 44 East 75th Street.
 Bernhard Wolf Weinberger, D.D.S., 40 East 41st Street.

DEATHS OF FELLOWS

Emanuel Charles Fleischner, M.D., 384 Post Street, San Francisco, California; graduated in medicine from Yale Medical School in 1904; elected a Fellow of the Academy May 20, 1920; died October 11, 1926.

Clarence Arthur McWilliams, M.D., B.A., M.A., 19 East 65th Street, New York City; graduated in medicine from the College of Physicians and Surgeons, New York City, in 1895; elected a Fellow of the Academy May 2, 1901; died January 20, 1927. Dr. McWilliams was a Fellow of the American Medical Association and of the American College of Surgeons; a member of the American Surgical Society, the International Surgical Society, the Surgical Society, the Gastro-Enterological Society, and also a member of the Society of Alumni of Presbyterian Hospital and of the Society of Alumni of Sloane Hospital for Women.

In the death of Dr. McWilliams The New York Academy of Medicine loses a loyal member and a sterling character.

For thirty years an attending surgeon at various New York hospitals, he also served in the Medical Corps of the U. S. Army in the Spanish-American War. During the Great War he early volunteered with the French and was in charge of one of their hospitals at Passy. When the United States joined the Allies, Dr. McWilliams was transferred to the service of his country. He served in many of the hospitals behind the lines and was invalided home, due to over-work and exposure.

Always an indefatigable worker, he wrote on various surgical subjects, his contributions being numerous and important. He was a member of local, national and international surgical societies, and gave himself up wholeheartedly to his work and his hospital patients.

His memory will be held in grateful remembrance by a host of friends and to those who knew him intimately his loss will be irreparable.

Henry Richard Humphries, M.D., Humphries Hospital, Mamaroneck, New York; graduated in medicine from the College of Physicians and Surgeons, New York City, in 1896; elected a Fellow of the Academy March 2, 1911; died March 1, 1927. Dr. Humphries was a member of the American Psychiatric Society and a member of the New York Neurological Society.

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No. 5

THE DEVELOPMENT OF MILITARY MEDICINE¹

LIEUT.-COL. JAY W. GRISSINGER

Medical Corps, U. S. Army

Formerly Chief Surgeon, 42nd Division, 1st Corps & 3rd Army, A. E. F.

*(Presented before the Section of Historical and Cultural
Medicine, January 7, 1927)*

The subject for discussion is so extensive that it will be possible to cover only some of its more important phases in the limited time available.

I have attempted, therefore, to select what appeared to be not only important but also more or less interesting phases in the development of military medicine, extending from remote times up to and including the modern organization for the selection, protection, evacuation and treatment of military personnel.

Naturally, this development has paralleled more or less closely the development of civil medicine, for both are founded on the same basic principles.

In prehistoric times armies did not exist. Conflicts were numerous but they were of a personal character rather than between groups and were either hand-to-hand combats between individuals or between man and one of the lower animals. No

¹ In preparing this article, the writer has drawn freely from Garrison's "Notes on the History of Military Medicine" and has also received valuable assistance from Colonel Edwin P. Wolfe, M.C., U. S. Army, and Captain N. S. Jarvis, M.C., U. S. A., Ret. Acknowledgment is made of their valuable assistance.

known to cure others. And they are not allowed to pass by a sick person in silence, without inquiring into the nature of his troubles." In our modern day, it is not necessary to invoke the aid of the law to accomplish the same result.

Israel

The Hebrews did a number of important things for the hygienic well-being of civilized man. The following passage from Deuteronomy (xxiii, 9-14) on the policing of a military camp is interesting:

"9. When the host goeth forth against thine enemies, then keep thee from every wicked thing.

"10. If there be among you any man that is not clean by reason of uncleanness that chanceth him by night, then shall he go abroad out of the camp, he shall not come within the camp.

"11. But it shall be, when evening cometh on, he shall wash himself with water; and when the sun is down, he shall come into the camp again.

"12. Thou shalt have a place without the camp, whither thou shalt go forth abroad.

"13. And thou shalt have a paddle upon thy weapon; and it shall be when thou wilt ease thyself abroad, thou shalt dig therewith, and shalt turn back and cover that which cometh from thee;

"14. For the Lord thy God walketh in the midst of the camp, to deliver thee and to give up thine enemies before thee; therefore shall thy camp be holy; that He see no unclean thing in thee, and turn away from thee."

India

In ancient India medicine was a matter of incantations against disease and injury, with a certain amount of herbal therapy. In the medical treatise of Susruta (4th century, B. C.) there is a chapter on "the mode of preserving the life of a king whose soldiers are on the march," from which the following may be quoted:

"A common practice of the enemy under such circumstances is to poison the wells on the roadside, the articles of food, the shades of trees (shadowy places), and the fuel and forage for

cattle; hence it is incumbent on a physician marching with the troops, to inspect, examine and purify these before using any of them, in case they be poisoned.

“A physician, fully equipped with a supply of medicine, should live in a camp not remote from the royal pavilion, and there the persons wounded by shafts of arrows or any other war projectiles, or suffering from the effects of any imbibed poison, should resort to him (the physician), conspicuous like a triumphant ensign for his fame and professional success.

“The (proper) medicine is that which consists of drugs grown in countries most congenial to their growth, collected under the auspices of proper lunar phases and asterisms, and compounded in proper measures and proportions, and which is pleasing (exhilarating to the mind) and has the property of subduing the deranged bodily humours without creating any discomfort to the patient, and which is harmless even in an overdose, and is judiciously administered at the opportune moment.

“That person alone is fit to nurse or to attend the bedside of a patient, who is cool-headed and pleasant in his demeanor, does not speak ill of anybody, is strong and attentive to the requirements of the sick, and strictly and indefatigably follows the instructions of the physician.”³

The Indian *materia medica*, dietetics, surgery, with the rules for the hygiene and nutrition of infancy, were the best in this period of antiquity. The Indian mode of splinting fractures with bamboo withes was adopted in the British Army. The soporific effects of opium, hyoseyamus, and cannabis indica, were known. Hypnotism was also employed in surgical operations. Surgery was taught by having the students practice swiftness and surety of incision upon gourds, melons, lily stalks, etc.; bandaging was practiced upon flexible models, and venesection was learned by puncturing the veins of large green leaves. The Hindus were aware that mosquitoes were somewhat associated with the transmission of fevers. Susruta, in the 4th century B. C., made the interesting observation that, when rats fall from the rafters, jump about and die, bubonic plague is at hand. It took the

³ Susruta Samhita, English translation by K. L. Bhishnagratna, Calcutta, 1907, i, 303-307.

world some two thousand years to realize finally the full significance of that observation.

Greece

The battle formation described in the *Iliad* (iv, 297) was of the phalanx order, with infantry in the rear, horsemen and charioteers in the front line, and "cowards in the middle." Battles began with individual skirmishing and trial combats, the horse and chariots going to the rear before an infantry assault, but taking the front line in a general advance. A wounded hero was dragged or borne out of danger by his comrades, sometimes placed under a tree to die, but was usually taken to a chariot which bore him to near-by huts. Here he was given a stimulating draught of wine, the "wound-drink" of the Middle Ages, his clothing was loosened in the region of the wound, which was then washed with warm water and, if necessary, further examined. An imbedded spear or arrow point was either withdrawn or cut out by widening the wound. The wound was then treated with various herbs relieving pain or with the juice of some bitter root and finally bound up with a woolen bandage.

War was the only school for surgery at this time. Hippocrates says in "The Physician": "Fights between citizens and their enemies are rare, but frequent and almost daily between mercenary soldiers; he who would become a surgeon therefore should join an army and follow it." With the Spartans, continuous military duty was obligatory between the ages of twenty and sixty, while in the other Greek states young men were trained for two or three years and released from duty until the hour of need. The Spartans had a regular medical service as suggested by the law of Lycurgus that the army surgeons retire to the rear of the right wing during an engagement.

Herodotus and Xenophon have given us considerable information about the medical arrangements of the Persian Army. This great army, strong in cavalry, originally made up of Persians alone, was, at the time of the expedition against Greece, augmented by a huge levy of all nationalities. The physicians of the Persian Army and fleet were mercenaries, usually Egyptians or Greeks. One of the latter, Democedes of Croton (520 B. C.), a high-salaried health officer, being retained at the court of Darius

as a captive, led an advance guard of Persian spies into Greece in order to get back to his home town (Herodotus, iii, 131-137). Herodotus has little to say of organization but has many interesting anecdotes, *e.g.*, of the mortality of the Persian Army from gluttony and change of water supply, of their sufferings from epidemic diseases, of a traumatic hemoptysis following a fall from a horse, of various wounds, of the treatment of wounds with dressings of myrrh and flaxen bandages, and of the deaths of Cambyses and Miltiades from traumatic septicemia or gangrene.

Xenophon (444-357 B. C.) was one of the generals commissioned by the younger Cyrus to raise an army of 10,000 Greek mercenaries for his expedition against Artaxerxes. After the defeat and death of Cyrus at Cunaxa (401 B. C.), Xenophon conducted the retreat from Babylonia back to their own country. In the narrative of this retreat contained in the *Anabasis*, there is only one mention of medical service (iii, 4):

“Marching thus for the rest of the day, some on the road over the hills, others advancing abreast of them over along the mountains, they came to the villages, and eight surgeons were commandeered, for there were many wounded. Here they remained three days, both on account of the wounded and because they had found, at the same time, abundant supplies, *viz.*, wheat-flour, wine and barley, which had been stored up for horses. These supplies had been collected for the then satrap of the country. But on the fourth day, they went down unto the plain. When, however, Tissaphernes overtook them with his command, necessity taught them to encamp at the nearest village and not to fight while marching; for there were many unfit for action, *viz.*, the wounded, those carrying the wounded and those who bore the arms of such carriers.”

It will thus be seen that they went to a great deal of trouble to give the best possible care and attention to those who had become casualties.

To lighten the march, the arms were sometimes carried in the wagons, the wounded usually on the backs of comrades, and one bearer was publicly scourged, by order of Xenophon, for trying to bury a wounded man to get rid of his burden. The troops suffered much from cold and frostbite in Armenia, many freezing to death, others laboring under snow-blindness. Arrow wounds

are mentioned, experiences with poisonous honey, and headache from date-wine, and it is of record that potable water was boiled by the Persians for Cyrus in silver kettles.

In the *Cyropaedia* (iii, ii, 12) we are told how Cyrus detailed physicians to treat wounded prisoners:

“At this juncture they brought to Cyrus the prisoners in chains and also some that had been wounded. And when he saw them, he at once ordered that the fetters be taken off, and he sent for surgeons and bade them attend to the wounded men. And then he told the Chaldeans that he had come with no wish to destroy them and with no desire to make war, but because he wished to make peace between the Armenians and the Chaldeans.”

Rome

As early as 502 B. C., it was customary for the Roman armies to take their wounded with them after a battle, to stay with them until they could be moved, or to leave them in a safe place.

The bad effect of epidemic disease upon morale is indicated in the account by Livy of the siege of Syracuse, 212 B. C.:

“They were visited too by a plague; a calamity extending to both sides, and one which might well divert their attention from schemes of war . . . afterwards, the disease was spread by merely attending upon and coming in contact with those affected; so that those who were seized with it either perished, neglected and deserted, or else drew with them those who sat by them and nursed them, by infecting them with the same violence of disease. . . . At last, their feelings had become so brutalized by being habituated to these miseries, that they not only did not follow their dead with tears and decent lamentations but they did not even carry them out and bury them; so that the bodies of the dead lay strewn about, exposed to the view of those who were awaiting similar fate; and thus the dead were the means of destroying the sick, and the sick those who were in health, both by fear and by the filthy state and the noisome stench of their bodies. Some, preferring to die by the sword, even rushed alone upon the outposts of the enemy” (XXV, 26).

The above is especially interesting in showing that Livy (59 B. C.–17 A. D.) had some notion of contagion. It is also interesting as a contrast to our modern knowledge and control of the infectious diseases.

Livy also noted that more died from battle wounds than were killed on the field (310 B. C.): "And among the Romans, so numerous were the wounds that more wounded men died after the battle than had fallen on the field" (IX, 32).

Cicero, in his second Tusculan Disputation (*circa* 70 B. C.), says: "If we notice how the wounded, borne in from the line of battle, behave themselves, it will not escape our observation that raw recruits make shameful outcries over slight wounds, while the experienced, seasoned soldier is pluckier and merely looks around for a surgeon to apply the dressing."

Caesar distributed his wounded in places occupied by Romans,⁴ and his subaltern field-commander, Labienus, had advanced far enough in methods of evacuation to send his wounded to Adrummentum in wagons for treatment (46 B. C.).

It is quite evident that the Romans had a well-organized medico-military personnel. Each of the 25-30 legions, of ten cohorts each (6,500-7,000 men in all), appear to have had a legionary physician; each of the nine Pretorian cohorts, the four urban cohorts, and the seven cohorts of *vigiles* (who acted as police and firemen in the city), had four cohort surgeons. Every body of auxiliary troops and every ship of the Pretorian fleet also had physicians. They were ranked among the non-commissioned officers. Their social status was on a par with accountants, notaries, registrars, secretaries, and civilian functionaries of all kinds.

Their uniform consisted of a double woolen undershirt, a short scalloped doublet, leather breeches reaching to the calves, and to which the boots were attached, a round metal helmet, not covering the neck, and the traditional short sword, attached to a belt. The surgical kit consisted of metal knives, scalpels, hooks, sounds, forceps, etc., carried in a long slender bronze case.

The excavations of three Roman hospitals, military, near Vienna, Bonn, and the Swiss Baden during 1887-1904 have given us some idea of the status of hospital construction and administration in antiquity. The excavations near Bonn, by Koenen,⁵ unearthed the remains of a stone hospital 90 by 50 meters in di-

⁴ Caesar: *De bello civili*, III, 75, 78, 2.

⁵ C. Koenen: *Beschreibung von Novesium*. Bonn, Jahrb., 111-112, pp. 180-192.

mensions, built on the corridor plan, with wards opening into closed corridors, the dining-room facing the main entrance and situated between the two main quadrangles. The 38 sick wards were probably intended for 5-6 patients each. Many surgical instruments and ointment boxes were found in the ruins as well as evidence of a diet kitchen. The other hospitals excavated were of a similar character.

The Romans were a clean people and were careful to enforce certain sanitary requirements in the selection of their camp sites and for the policing of the camp. It is interesting to note that they had a suspicion that marshes engender certain substances inimical to health. Vitruvius (1st century A. D.) says: "The vicinity of a marsh is to be avoided, because, when the morning airs reach the house at sunrise, the mists of these places arrive with them, and the wind, mixed with these vapors, spreads the poisonous exhalations of the creatures inhabiting the marsh, and so makes the place pestilential" (I., 4). Columella says: "Nor should buildings be erected near a marsh nor a military road adjoin it, because through heat it gives forth noxious poisons and engenders animals around with dangerous stings, which fly at us in dense swarms" (I., 5). As in the case of plague, it took the world centuries to arrive at the real solution of the reason for the dangerous character of swamps and the relation of the insects bred therein to certain diseases.

After the second Punie War the wounded were carried by the *velites* to the rear, thence to tents or huts, where their wounds were bound, or else they were billeted in the houses of the wealthy, or sent to a safeguarded place, sometimes by wagon transportation. As long as the fighting was within the Italian peninsula and near Rome this was possible, but when warfare was carried into distant lands, new arrangements had to be made. For this, provision appears to have been made to establish hospitals in connection with their camps both for sick and wounded soldiers and for animals. The hospital personnel consisted of hospital superintendents, the physicians, the sanitary personnel, who carried bandaging material in a pouch and were attended by pupils, the paper work personnel, and those who waited on the sick. It sounds very much like the personnel for a modern camp hospital.

Military medicine, which had reached a comparatively high standard during the height of the Roman power, suffered considerable retrogression during the succeeding period.

The Middle Ages

During this period of approximately a thousand years, medicine, along with science in general, made little advance.

In the Western Roman Empire the deterioration was especially noticeable, though the Eastern Empire continued to maintain an efficient army with an adequate medical personnel.

The *Tactics* of Emperor Leo contains the following passage on the necessity of medical personnel which shows an appreciation of the effect upon morale of proper care of the wounded:

“Give all the care you possibly can to your wounded for, if you neglect them, you will make your soldiers timorous and cowardly before a battle and, not only that, but your personnel, whom you might preserve and retain by proper consideration for their health and welfare, will be otherwise lost to you through your own negligence.”⁶

Vegetius⁷ (375–392 A.D) lays down certain rules concerning camp sanitation which are for the most part applicable to-day:

“Vegetius maintains that large bodies of troops should not camp too long in any one place, since epidemic diseases arise from corruption of the air and water and can only be prevented by frequent change of camp. Troops should not camp upon dry hillsides, devoid of shade, and, in summer, should always be provided with tents. One drink of polluted water may be ‘as potent as poison’ in starting an epidemic. Daily exercises, in the opinion of experienced commanders, are better for the health of soldiery than physicians. In periods of great heat all marching should be done before sunrise. In winter little can be expected of the soldier if he is allowed to freeze. There should be no lack of fuel and clothing. Hunger is more cruel than the sword. Recruits from cold climates are hardier and more resistant to disease than those from warmer climates; and the army must be

⁶ Leo: *Tactica*. Epilogue (Leyden, 1612, p. 381). Cited by Haberling, p. 70.

⁷ Vegetius: *De re militari*, iii, 2. Cited and translated by Frölich, *op. cit.*, 311–312.

continually strengthened by recruits from the farmlands, who are stronger than the city-bred. The recruit should be young, but strength is more essential than size; he should be keen-eyed, with head erect, broad chest, long muscular arms, capable hands, slender flanks, with thighs, calves, and feet not distended by superfluous flesh but hard with accumulated muscle. It is best to discharge the unfit at once. It is the duty of commanding officers to provide good water, proper food and medical attention for the sick. The camp commander should look after the patients in their tents, the physicians who attend them and the expenses incident thereto."

The feudal system exercised a most deleterious effect upon military medicine. The high officials were attended by the few capable physicians and surgeons but the individual soldier was sadly neglected. There was no organization for the care of wounded, and a soldier who suffered a severe wound was in a distressing plight—in reality, he was better off if the wound proved immediately fatal.

The great Mongol raids of the Middle Ages were characterized by brutal massacres of the enemy's wounded and fatalistic Oriental indifference to their own.

In France, England and Germany, the general practice of surgery was in the hands of barbers and bath-keepers. These individuals extracted teeth, gave enemata, and performed such minor operations as venesection, cupping and leeching.

A real advance is seen in the accounts of camp hospitals and ambulance service as noted in the chronicles of the conquest of Granada and the expulsion of the Moors by the armies of Ferdinand and Isabella. The following extract from the account of the siege of Alora (1484), by Hernando del Pulgar,⁸ is of interest in this connection:

"For the care of the sick and wounded, the queen sent always to the camp six large tents and their furniture, together with physicians, surgeons, medicines and attendants; and commanded that they should charge nothing, for she would pay for all. In the camps, these tents with their appointments were called the Queen's Hospital."

⁸ Hernando del Pulgar: *Cronica de los Reyes Catolicos* (iii, 33). Valencia, 1770, 230.

The long period of stagnation of the Middle Ages finally came to an end and there appeared an increasing development of the arts and sciences in general, marked in the succeeding stage of the world's progress by such great figures as Leonardo da Vinci, Michael Angelo, Shakespeare, Copernicus, Paracelsus, Vesalius and Paré.

The Renaissance

Comment on this period will be limited to a short reference to three of the outstanding figures just mentioned.

Paracelsus (1491-1541) in his "Larger Wound-Surgery" (1536) makes an illuminating observation concerning the treatment of wounds:

"Warily must the surgeon take heed not to remove or interfere with Nature's balsam but protect and defend it in its working and virtue. It is in the nature of flesh to possess, in itself, an innate balsam which healeth wounds. Every limb has its own healing in itself; Nature has her own doctors in every limb; wherefore every surgeon should know that it is not he, but Nature, that heals. What do wounds need? Nothing. Inasmuch as the flesh grows from within outwards, and not from without inwards, so the surgery of a wound is a mere defensive, to prevent Nature from suffering any accident from without, so that she may proceed unchecked in her operations."

This shows a keen understanding of the processes of wound repair and of the danger of infection from outside sources.

"Paracelsus was the founder of chemotherapy, taught that medicine and surgery are one (*einerlei*), stood for rational wound-treatment, opposed witchcraft, stargcraft and uromancy, was the first to analyze mineral waters and made real additions to the pharmacopoeia. He was the first to write on miners' diseases, described miners' phthisis and the effects of choke damp, saw gout and stone as diathetic diseases, and noted the correlation between goitre and myxocdema. His motto was: Experimentation controlled by the authoritative literature."

Vesalius (1514-64) was the founder of modern anatomy, which he taught first by public dissection. He published "Fabrica" in 1543. In the copy of this treatise in The New York Academy of Medicine, Dr. William Osler has written: "The greatest book ever printed, from which modern medicine dates."

Vesalius was the first to describe aneurism of the thoracic and abdominal aorta.

Ambroise Paré (1510-90) was probably the greatest of military surgeons when one takes into consideration the period during which he lived and the state of the art at that time. He invented many surgical instruments, introduced artificial limbs and eyes, the truss, implantation of teeth, reintroduced massage and podalic version, described pyemia, the effect of prostatic hypertrophy and fracture of the neck of the femur, saw flies as possible carriers of wound infection and was the first to suggest the syphilitic origin of aneurism.

On the expedition of Francis I to Turin (1536-7) Paré had an instructive experience with the method of wound treatment then in vogue. He describes it thus:

"Now I was at this time a fresh-water soldier; I had not yet seen wounds made by gunshot at the first dressing. It is true I had read in John de Vigo's first Book, 'Of Wounds in General,' eighth chapter, that wounds made by firearms partake of venienosity by reason of the powder; and for their cure he bids you cauterise them with oil of elders scalding hot mixed with a little treacle. And to make no mistake, before I would use the said oil, knowing this was to bring great pain to the patient, I asked first before I applied it, what the other surgeons did for the first dressing; which was to put the said oil, boiling well, into the wounds, with tents and setons; wherefore I took courage to do as they did. At last my oil ran short and I was forced instead thereof to apply a digestive made of the yolks of eggs, oil of roses, and turpentine. In the night I could not sleep in quiet, fearing some default in not cauterising, that I should find the wounded to whom I had not used the said oil dead from the poison of their wounds; which made me rise very early to visit them, where beyond my expectation I found that those to whom I had applied my digestive medicament had but little pain, and their wounds without inflammation or swelling, having rested fairly well that night; the others, to whom the boiling oil was used, I found feverish, with great pain and swelling about the edges of their wounds. Then I resolved never more to burn thus cruelly poor men with gunshot wounds.

“While I was at Turin I found a surgeon famed above all others for his treatment of gunshot wounds; into whose favor I found means to insinuate myself, to have the recipe of his balm, as he called it, wherewith he dressed gunshot wounds. And he made me pay my court to him for two years, before I could possibly draw the recipe from him. In the end, thanks to my gifts and presents, he gave it to me; which was to boil in oil of lilies, young whelps just born and earth-worms prepared with Venetian turpentine. Then I was joyful and my heart made glad, that I had understood his remedy, which was like that which I had obtained by chance.

“See how I learned to treat gunshot wounds; not by books.”⁹

17th Century

The 17th century was marked by the demonstration of the circulation of the blood by Harvey in 1616 and his publication of this important contribution in 1628.

Military medicine showed no great advance during this period. The pharmacopaeias of the time were remarkable for the nauseating and loathsome ingredients they contained, such as oils of vipers and angleworms, beetles, ear-wigs, powdered mummy, etc.

A field-chest devised by Muralt for the Bavarian artillery in the Turkish campaign of 1688 is described by J. Sehuster (*Deutsche mil.-arztl. Ztsch.*, Berl., 1916, XLV, 123-131). It weighed 320 pounds and contained 30 surgical instruments and matériel, with 197 remedies, including 3 pounds of theriac (an opiate antidote of 64 ingredients), mithridate (49 ingredients), tincture of benzoar, Pannonian powder (mostly red sandal-wood), pulvis ad casum (*i.e.*, for any emergency, containing rhubarb, terra sigillata, palm-juice, spermaceti and mummy dust), scorpion oil, rainworm oil, zinc oxide, Vigo's plaster of frog-spawn and mercury, human fat, dog's fat, rhubarb, jalap, aloes, senna, tartar emetic, Peruvian bark, mercurials, sugar of lead, alum, guaiac, sassafras, squills, cantharides, hartshorn, sal ammoniac, camphor, opium, etc.

⁹ From “The Journey to Turin in 1536” in Paré's *Apologia et Voyages*; translated by Stephen Paget in his *Ambroise Paré*, New York, 1897, 33-35.

Sir Kenelm Digby's "sympathetic powder" for healing wounds at a distance and the "weapon salve," which was applied to the weapon instead of the wound, were universally employed.

As in the time of Hippocrates, war was the only field in which surgery could be learned. The capable surgeons numbered not more than a half-dozen for the entire century, and the surgery of the soldier remained largely in the hands of the barber and the bath-keeper as in the Middle Ages. The executioner, by the skill acquired in breaking bones on wheels and other forms of torture, was supposed to be an expert in bone-setting.

In January, 1629, an ordinance of Richelieu established the first stationary hospitals in the rear of armies in the field, and a state document of 1630 demonstrates the existence of one of these base hospitals at Pigneval with adequate medical and surgical personnel.

However, the poor construction and administration of the military and naval hospitals, which consisted of little else than spacious halls in which the squalid patients were crowded three in a bed, made them nests of infection and engendered the horror of hospitals which persisted until recent times. The streets of Paris and the other large towns swarmed with lame and mutilated soldiers whose status as depicted in the etchings of Callot, was that of squalid beggary.

This makes an interesting comparison with the care given to wounded soldiers at the present time, when enormous sums are expended to restore them to health or to care for those who are permanently incapacitated.

Lack of knowledge concerning the cause of the various infectious diseases and the methods to attack them successfully resulted in tremendous epidemics of such diseases as typhus, dysentery, typhoid fever and plague whereby armies were frightfully scourged. The infection was conveyed also to the civil communities and widespread outbreaks resulted with tremendous mortality. An outstanding instance is recorded in the devastating epidemics occurring during the Thirty Years' War. By the end of the war, Germany was a ruined country, its population reduced from 16-17,000,000 to 4,000,000 (Lammert).

In 1606, Tobias Cober, a physician of Görlitz (Bohemia), described the discomfort and disability associated with pediculosis.

“With these foregather the most terrible pediculi, hardly to be thought of without a sense of discomfort, which in themselves, through their constant promenading and sucking of the body, are enough to stir up one’s bile. For it is impossible to avoid the bites of these miserable creatures, especially in the first years in the field, as they enjoy a sort of right of citizenship in all camps. The atmosphere is so lukewarm, mild and stuffy that when clothes which have been washed in swamp water are exposed to the sunlight, they are seen to swarm with these ‘vermibus Syllanis.’ One cannot hope therefore to get away from these constant attendants and companions, as they seem to arise from the very moisture of the body itself. At first I thought to rid myself of the pest by constant change of newly washed clothing, but even this seemed to bring them more and more into play, instead of destroying them. And this phthiriasis, which even the Egyptian magi of old could not produce, but which in these localities every one can create in his own person, can, as I bear witness, drive a man into fury. For as often as I was bitten by these miserable, abject animaleules, I gave full rein to my anger, fairly gnashing my teeth with rage, and cannot even now think of them without vexation. . . . One cannot ward off these armed six-footed Turks even with iron and steel. . . . And among many soldiers I have noted the frightful spectaele that this fearful plague of lice had gone far enough to cover the whole nape with ulcers, the flesh not only excoriated to the breadth of one or two fingers, but actually excavated, the men condemned to this miserable fate dying with groans and lamentations.”

This description is particularly interesting in view of the widespread distribution of this pest in the field during the World War. At one time it was estimated by one of our Allies that 90% of the illness from which their troops suffered was due to skin diseases. The latter were largely scabies and pyodermias, the latter resulting from infected scratch wounds caused by louse infestation.

The American Revolution

The foregoing discussion, which has been necessarily of a sketchy character, brings us to the period during which the United States of America came into existence as a nation.

Though it would be interesting to follow the progress of military medicine in the other nations during the 18th century and prior to the American Revolution, time will not be taken for this purpose and we will confine ourselves to a discussion of the development of our Army Medical Department.

Prior to May 8, 1775, no organization existed for the care and treatment of the wounded in the American forces. In such engagements as the Concord or Lexington fights, the wounded were attended by private physicians who later presented bills for their services. These physicians had no military status or authority.

On May 8, 1775, The Provincial Congress, in the Colony of Massachusetts Bay, ordered that a committee of physicians, appointed by the Congress, examine as to professional qualifications all persons recommended for appointment as surgeons to the several regiments by their commanding officers. As described by Thacher in his *Military Journal* of 1775, the examinations in anatomy, physiology, surgery, and medicine, were so rigorous that a perspiring candidate, when asked how he would promote sweating in a rheumatic patient, replied: "I would have him examined by a medical committee." This was an auspicious start and indicates that the candidates were looked over very thoroughly before they were accepted for service.

After the battle of Breed's Hill, June 16, 1775, hospitals were established at Cambridge, Watertown, Roxbury and elsewhere, with regulations drafted by the Congress, and appropriate warrants were issued to the hospital surgeons and mates. At this time, the medical establishment of the Army was known as "The Hospital."

July 19, 1775, The Colonial Congress in Philadelphia appointed a committee to consider ways and means of establishing the Hospital. This was strongly recommended by General Washington on July 21.

July 27, 1775, Congress reported a bill for its organization, which was adopted. Dr. Benjamin Church became Director-General and Chief Physician at a salary of four dollars per diem.

With the end of the war there began a series of unfortunate events which reduced from 100 to 1 the head of the medical establishment.

In 1606, Tobin Director-General Church was tried by a council for the dishonorable correspondence with the enemy and

October 17, 1775, Dr. John Morgan was appointed to succeed Church. Morgan had been instrumental in organizing the medical department of the University of Pennsylvania. He rendered most valuable services but was unjustly dismissed from the Army on January 9, 1777. Following this action, Morgan prepared and published his "Vindication" (1777), and received a tardy but handsome exoneration from Congress on June 12, 1779. His dismissal was due in part to the increasing sickness among the troops, the difficulty in supplying them with medical supplies, but principally to a system of divided authority which was in existence at that time.

April 11, 1777, Dr. William Shippen was appointed to succeed Morgan. Shippen was tried by court-martial in 1780, but was acquitted and was reappointed Director-General on September 30th of the same year. John Coehran was appointed "Chief Physician and Surgeon" at the same time.

During the war, Washington manifested the keenest interest in the welfare of the medical establishment, particularly in his instructions to Morgan for the removal of the Hospital to New York (April 3, 1776), his letters to John Haneock on the dubious and jealous character of the regimental surgeons and their intrigues against the Hospital (1776-1777), and his letter of approval of Shippen's and Coehran's plan for reorganization (February 14, 1777).

The first hospital regulations were drafted by Morgan after conference with Washington and the regimental surgeons and were published in July, 1776.

Baron von Steuben was appointed Inspector-General of the Army in May, 1778, at the instance of Washington. In 1780 he prepared and published our first Army Regulations, of which a portion was devoted to the medical establishment. The latter stressed the value to morale of the officers' attention to the health of their troops, provided for the setting aside of two or three tents for a regimental hospital, bed sacks for the sick, two to each company, morning sick call, weekly report of sick to the regimental commander (oftener when necessary), care of the arms and accoutrements of a sick soldier, that the surgeon should be the sole judge as to when a sick soldier was strong enough to return to duty, and that the surgeon should accompany the troops on the

march as well as in camp. Many of these regulations are still in force in the Army and show therefore how sound they were.

In 1776, Dr. John Jones published a treatise on wounds and fractures, which was the first American book on surgery, and, through the appendix on camp and military hospitals, our first book on military medicine.

In 1777, Benjamin Rush published his pamphlet on the hygiene of troops, and Shippen drafted a plan for flying ambulances, while in 1780 James Tilton introduced log-hut hospitals.

Naturally, with the lack of any organization when the war broke out, there was much suffering among the sick and wounded. Two types of hospitals were in use—small regimental hospitals and the larger general hospitals. The former were with the troops and were of several types. Some were in tents while others were in huts. The huts were called at times “The Flying Hospital.” They have been described as follows: “The Flying Hospital huts are to be 15 feet wide, and 25 feet long in the clear and the story at least 9 feet high—to be covered with boards or shingles only without any dirt—a window made at each side and a chimney at one end. Two such hospitals are to be made for each brigade in their rear as near the center as may be; and, if the ground permits of it, not more than three nor less than one hundred yards from it.”¹⁰

The following extracts from letters from prominent officers indicate clearly the lack of supplies and equipment for care of the sick and wounded:

“We shall be hard set to get the sick away; our hospital, or rather house of carnage, beggars all description and shocks humanity to visit. The cause is obvious; no medicine or regimen on the ground suitable for the sick; no beds or straw to lie on; no covering to keep them warm other than their own thin and wretched clothing. We cannot send them to Fort George as usual, the hospital being removed from this place to Albany, and the weather is so intensely cold that before they would reach there, they would perish.”¹¹

¹⁰ Valley Forge, January 13, 1778. War of the Revolution Orderly Book, July 7, 1777, to April 25, 1778, Volume 20, A.G.O. Old Records, p. 28.

¹¹ Letter from General Gates to General Schuyler, Ticonderoga, 1 December, 1776. *American Archives*, Fifth Series, Volume III, 1776, p. 1031.

“ . . . I feel a degree of happiness that the Congress are going to put the hospital department upon a better establishment, for the sick this campaign have suffered beyond description and shocking to humanity. . . . ”¹²

“ . . . The wretched condition they are now in for want of almost every necessary of the conveniences of life, except flour and bad beef, is shocking to humanity and beggars all description. We have neither beds or bedding for our sick to lay on or under, other than their own clothing; no medicine or regimen suitable for them; the dead and dying laying mingled together in our hospital, or rather house of carnage, is no uncommon sight. . . . ”¹³

It is a remarkable tribute to the courage and tenacity of purpose of our forefathers that they were able, under such distressing circumstances, to bring the war to a successful conclusion.

An interesting light is thrown on methods of evacuation by the following extract from *American Archives*, Volume V, 4th Series, page 113:

“Headquarters, Cambridge, March 4, 1776.

“ . . . The College to be appropriated for the regimental sick and such as may be wounded. Suitable barracks at Prospect Hill be placed in immediate readiness to receive at least 100 wounded. Necessary men to be detailed to assist in carrying wounded to the hospital. Hand barrows and other proper means to be provided for their removal.”

The use of hand barrows for the removal of wounded could hardly have been either an expeditious or a comfortable method of evacuation.

The British troops suffered much also from illness and lack of supplies. Their regimental hospitals are described by Gore as “simple collections of sick men huddled together” without organization, regulations, clothing, or rudimentary comforts.

After Yorktown, October 19, 1781, Congress rapidly demobilized the Army and the Hospital Department was practically disbanded.

¹² General Greene to the President of Congress, Corryell's Ferry, Delaware, December 16, 1776. Page 1246, same reference as above.

¹³ Anthony Wayne to the Committee of Safety for the State of Pennsylvania, Ticonderoga, December 4, 1776. Page 1359, same reference.

On June 2, 1784, Congress resolved "That the commanding officer be, and he is hereby, directed to discharge the troops now in the service of the United States, except twenty-five privates to guard the stores at Fort Pitt and fifty-five to guard the stores at West Point, and other magazines, with a proportionate number of officers; no officer to remain in service above the rank of captain, and those privates to be retained who were enlisted on the best terms: Provided: That Congress before its recess shall not take other measures respecting the disposition of those troops."

The Army therefore practically disappeared, though Congress on the next day (June 3, 1784) passed a resolution recommending that certain States furnish 700 militia to serve for twelve months. Of these, Connecticut was to furnish 165, New York 165, New Jersey 110, and Pennsylvania 260.

From this time on to the War of 1812, there was considerable fluctuation in the forces authorized as, for example, on May 3, 1798, war with France being imminent, Congress authorized an army of 10,000 men with James Craik as Physician-General (1798-1800).

In May-June, 1800, the above forces were disbanded. This action was taken when it became a certainty that there would be no war. Doctor Craik was mustered out together with all other medical officers except six surgeons and twelve surgeon's mates.

In 1812, the Army was again increased by reason of the war with Great Britain, and Doctor James Tilton, of Delaware, was appointed Physician and Surgeon-General.

War of 1812

In spite of the distressing experiences and the general inefficiency so conspicuous during the Revolutionary War, the United States entered the War of 1812 totally unprepared and proceeded to duplicate the unfortunate mismanagement of the care of the sick and wounded.

This war did not contribute anything especially new in its medical aspects. The same general methods seem to have been followed in the collection and treatment of the sick and wounded as were in use during the Revolution. The following extracts

from certain reports read very much like reports previously cited from Revolutionary records:

"After which, detachments were sent out with waggons to search the woods and collect all the wounded and dead and to bring them to the ground occupied by the troops. After this was completed, all the Indian houses were prepared, amounting to three or four, and the wounded moved into them, as it began to rain and the surgeons were industriously employed with them during the whole night. Battle began 3:30 P. M. and lasted 2½ hours. Eighteen Americans were killed and 63 wounded."¹⁴

"... The Surgeon has now in the hospital tents at camp about forty men, most of whom he is apprehensive will not survive. The balance of the sick he is obliged to permit to remain in their tents, having no room for them. Some have the measles, others a fever, which is becoming every day more alarming.

"The field officer of the day has also taken a view of the hospital tent of the 13th regiment. Five men were lying there dead. He was told they had been dead for 24 hours and were not buried for want of coffins. The sides of the tent had been forced open by the wind."¹⁵

The medical officers in the War of 1812 appear to have worked with great energy and fidelity but were handicapped tremendously by lack of equipment and supplies. However, the lesson was not learned. The country did not take to heart the terrible sufferings of the sick and wounded, resulting largely from the policy of unpreparedness, and entered the Mexican War just as unprepared as they had entered the two previous wars, though an improvement was made in the organization of the Medical Department, brought about by the Act of Congress dated April 14, 1818, reorganizing the Army and Navy.

This act has generally been considered as the commencement of the modern history of the Medical Corps. The Surgeon-Gen-

¹⁴ Collection of the official accounts in detail of all the battles fought by sea and land between the Navy and Army of the United States and the Navy and Army of Great Britain during the years 1812, 13, 14, and 15. By H. A. Fay, late Captain in the Corps of U. S. Artillerists. New York, 1817. Printed by E. Conrad. Battle of Brownstown, August 9, 1812.

¹⁵ Letter from Captain Benjamin Forsyth, to Colonel Macomb, Sackett's Harbor. Appears to have been written from Ogdensburg.

eral (Joseph Lovell) now assumed direct jurisdiction over the officers of the Corps and this constituted a great change. The organization, however, was not greatly altered otherwise from the previous organization, the only material change being the consolidation of the hospital and garrison medical officers under the denomination of Post Surgeons. It was not until the reduction of the Army in 1821 that the Corps assumed the form which it has retained without decided change up to the present time.

In the period (1833) between the War of 1812 and the Mexican War, William Beaumont (1785-1853), a surgeon in the United States Army, published his famous "Experiments and Observations." These were based on an accidental gastric fistula in a Canadian half-breed, Alexis St. Martin, and disclosed much valuable information upon the nature of the gastric juice and the process of digestion in the stomach.

This important work was carried on with true scientific zeal under most difficult conditions. It was first begun at an isolated military post in Michigan and completed by bringing St. Martin approximately 2,000 miles to Plattsburg Barracks, New York. Vaughan says: "Every physician who prescribes for digestive disorders and every patient who is benefited by such a prescription, owes gratitude to the memory of William Beaumont, who, in 1825, on the island of Mackinac, began his studies of digestion, which he pursued with labor and skill for the benefit of mankind."

Beaumont was the pioneer of experimental physiology in America and his observations form the foundation of modern dietetic tables and scales.

The Mexican War

The American Army was sadly unprepared for the Mexican War and carried it to a successful conclusion only after untold suffering from lack of clothing, supplies, rolling stock, and adequate medical administration.

At this time, the Regular Army numbered 7,500 men and the Medical Department consisted of a Surgeon-General with the rank of Colonel and 71 medical officers. This was increased by Congressional acts of 1846-47 to 115, with 135 surgeons for vol-

unteer forces (total 250). About 100,000 men were sent to Mexico during 1846-48, so that only six companies of regular troops were left in the entire United States (Duncan).

There appears to have been little forethought or realization as to the requirements of such a campaign in a foreign country and, as a consequence, the results from a medical standpoint were distressing. Ignorance of the character of water supplies brought hundreds down with diarrhœa and dysentery. Hospitals were hastily improvised in any convenient buildings and the misery of the sick was increased by the squalor of the Latin surroundings. Conditions improved after the entry into the Mexican capital when General Scott levied \$20,000 for the sick in hospital. He also levied \$100,000, which was wisely utilized for the establishment of the United States Soldiers' Home in Washington, D. C. This institution has expanded into a splendid retreat for the aged and disabled veterans of the Regular Army.

The following extracts from accounts of two officers who participated in the campaign throw considerable light on conditions existing at the time.

" . . . The ambulances, light four-horse wagons on springs, invented, as you know, by Baron Larrey . . . are already kept very busy, carrying the sick from the camp to the general hospitals in the city." "Camp Vergara—near Vera Cruz—July, 1847."

"The sun was very powerful and the men . . . threw away, first watch coats, then their extra garments, their knapsacks, blankets—many of them, in short, threw away everything but arms and accoutrements."

"The sick had a trying time of it . . . they fell by dozens, or hundreds, I should say, by the roadside. We put as many of them in the ambulances as they would hold and, when possible, we would put a man on top of the stores in the overladen wagons, but they fell too fast for us and all we could do at last was to recommend them to hold on to the tails of the wagons." "San Juan—July, 1847."

"Dire disease still pursued us. Our ambulances, or avalanches as the men call them, were full and overfull. The wagons of the train were pressed into service in addition to their proper loads." "Puebla de los Angeles—August, 1847."

"In the meantime, San Augustin was becoming a grand hospital. The surgeons, following the movements of the army, did all that men could do in the field for the wounded. Night and day without shelter in sun and rain, they gave their devoted attentions. After the first temporary dressings, they sent their wounded to the various establishments converted for the time into hospitals." "San Augustin Valley of Mexico—August, 1847."

"I found my professional brethren getting out their instruments and dressings, arranging their tables, etc., for operations, and having done the same, I mounted to the roof to gaze at the rare spectacle before me until my services should be called into operation." "City of Mexico—September, 1847."

"The wounded were brought in rapidly; the 'laborers were few' but most diligent in their duties; yet the wounded suffered greatly for want of commonplace comforts. Such bedding as could be collected about the building was spread for them but by far the greater part of them lay on the floor or on the forms used by the scholars, for the castle was a military academy also, the West Point of Mexico." "City of Mexico—September, 1847—Battle of Chapultepec."¹⁶

The following notes have been abstracted from "Medical and Surgical Notes of Campaigns in the War with Mexico during the years 1845-46-47-48, by John B. Porter, Surgeon, U. S. Army." From the *American Journal of the Medical Sciences*, January, 1852, Volume XXIII, New Series.

"Each regimental hospital had two or three large hospital tents, and when they were too much crowded or particularly long and severe cases occurred, patients were transferred to the general hospital, which was a long frame building in the village of Corpus Christi. The hospital tents were fitted up with stoves in the winter and were quite comfortable."

"I have often regretted that etherization was so much resorted to in capital operations at Vera Cruz during a portion of 1847; nor can I avoid congratulating both the patients and myself that

¹⁶ The above extracts were taken from *El Puchero*, or a *Mixed Dish from Mexico*, embracing General Scott's Campaign, with Sketches of Military Life in Field and Camp. By Richard McSherry, M.D., U. S. N., late Acting Surgeon, Regiment of Marines.

before the Summer had passed away, its employment was wholly abandoned. Anesthetics poison the blood and depress the nervous system and, in consequence, hemorrhage is much more apt to occur and union by adhesion is prevented." (Volume XXIV, New Series.)

" . . . To organize the hospital was no small undertaking. There was not a single hospital steward except invalid and incompetent ones; an invalid wardmaster; the employed physicians were almost universally incompetent; no well men left for cooks and nurses when the army marched into the *tierra templada*; there was not a single kitchen table, bench, bunk, privy (with scores of dysentery patients), chamber utensils; in a word, there was nothing but the miserable sick; and, under these circumstances, the machine had to be put in motion. . . . But this discouraging state of things was gradually removed." (Volume XXVI, Vera Cruz, 1847.)

An interesting light is thrown on the conditions of field service during this period by the following extracts from a letter written by Dr. N. S. Jarvis, Surgeon, U. S. Army, dated Monterey, Mexico, October, 1846. This was published in *The New York Journal of Medicine* for March, 1847.

"On the 19th of September we encamped within four miles of Monterey, in a grove of pecan trees, called 'Walnut Grove,' where we were abundantly supplied with clear and cold water, from a stream of considerable size and rapidity, formed by the junction of numerous springs, which took their rise in surrounding lime-stone rocks. The combination of wood and shade rendered this spot admirably fitted for an encampment. On the following day parties were employed in reconnoitering the enemy, and in observation of the fortified position of the town. Towards evening my regiment, 3rd Infantry, with another, was advanced a mile towards the town, to cover a party of engineers, engaged in the erection of a Mortar Battery, but returned to camp about 9:00 P. M., having been relieved by another regiment.

"On the morning of the 21st the whole division was thrown forward towards the city, with a view, as we supposed at the time, of making a diversion in favor of the 2nd Division, under General Worth, which was moving on the western side of the city by the Saltillo road. Few of us supposed, as we silently marched

along, occasionally passing through corn fields and by the side of hedges, or whatever could conceal our movements from the enemy in their batteries, that we should so shortly be engaged in a fierce and deadly strife. As soon as, or in fact before, we emerged from under cover, the batteries from either end of the city opened their fire upon us, completely sweeping the plain in every direction, and enflading the advancing columns of our troops, now rapidly marching towards the suburbs. The engineer officer having reported the practicability of attacking with success the rear of some of their forts, the 1st, 3rd, and 4th Infantry were ordered to advance rapidly by separate roads, and now it was my professional labors commenced; the nearest and only shelter that presented itself to me for the wounded, falling every moment under a most destructive fire, was a quarry pit, four or five feet in depth, and the same in breadth. Several of these were contiguous, and to them I directed the wounded to be carried. By stooping we were protected from the shots, which, however, became every moment thicker, owing to the fact that our troops had by this time advanced within range of the enemy's fire, and the moment they perceived a party of men bringing the wounded to us, they directed all their guns upon it. I had already performed one amputation, and was preparing for a second, when two or three fugitives rushed into the pit, falling over the wounded that lay there crowded together, saying that a large body of lanciers were approaching. So little credit did I attach to their report, which I ascribed rather to their fears than the actual presence of this dreaded description of troops, that I never raised my eyes to observe them; which circumstance doubtless saved us all. Had I been discovered, all would have been massacred, as in their headlong fury they would neither have delayed to ascertain our character or profession, nor have paid much respect to our patients. Several soldiers who had sought an adjoining pit with an officer were slain. They were soon after repulsed by a regiment of Ohio and Mississippi Volunteers, marching to reinforce those already in the town, and their retreat was farther quickened by a shower of grape opened upon them by our artillery.

"I commenced with a determination of giving you a surgical history of the actions of the 21st, 22d and 23d September, but

have unintentionally thus far given a military narrative. This, however, will show, in the incidents above narrated, that the military surgeon is at times somewhat unpleasantly situated, when in the discharge of his professional duties, deprived as he is of the security, and many of the appliances enjoyed by his fellow practitioner in civil life.

“The first wounds were received in crossing the plain, and were inflicted by grape and cannon-shot. This was of course before we had approached within reach of their musketry. These wounds were all low: generally at, or just above the ankle, according to distance and direction. Of the first three men brought to me, two had received wounds from twelve-pound shots just above the ankle, which had nearly severed the limbs, which were hanging only by a portion of integuments. The other had his heel torn off by a six-pound shot. Shortly after, our troops having advanced within reach, and under the fire of the Mexican Infantry, numerous cases of wounds by musket and escopette¹⁷ balls were brought to me; these latter are one-third larger than our musket-balls, and consequently inflict a more severe and formidable wound. So numerous at this time became the wounded in our pit, and so constant and heavy the fire, directed towards the parties approaching with the wounded, as to compel us to remove our hospital several hundred yards farther in the rear. We had not long been in our new position, when some covered wagons bringing the wounded attracted the attention of the enemy, who immediately reopened their fire, compelling us a second time to remove beyond the range of their shot.

“Among the numerous projectiles, occasioning severe and fatal wounds, were grape, canister, fragments of iron and copper shells, and stones knocked by the balls from the buildings and walls. Their shells were thrown with great accuracy, frequently in the midst of a body of troops, but fortunately killing and wounding but few.

“Before speaking of any particular wounds, I will here take occasion to make some remarks respecting the character they assumed, and the peculiar causes acting to prevent a favorable result, so far as regarded the healing of all, even the most slight.

¹⁷ An escopette is a short carbine, similar to a blunderbuss, and carries a ball one-third larger than our musket. M.

The first annoyance we experienced, and which no doubt exerted an injurious effect, was one little anticipated at the time. The moment a limb was amputated numerous flies would alight on the stump, and must have deposited their eggs, for when it became necessary to dress the stump, myriads of maggots were found buried in it which could be expelled with great difficulty; rendering it necessary in some instances to reopen the flap, for their complete extermination. A much more formidable enemy made its appearance in an erysipelatous inflammation of the integuments, covering the stump, which generally set in two or three days after the operation; and notwithstanding all the means made use of to arrest it, most commonly ended in sloughing, and either proved fatal or rendered a second amputation necessary. That some influence existed previously, either external or internal, from causes connected with the state of the atmosphere, or habits of the men, arising from diet or water, was manifest. The slightest wound or scratch became in every case a tedious ulcer, in some instances proving a cause for serious alarm. Apparently the most trifling wounds required an unusual time for healing, and even those that had previously healed would break out again, and present greater difficulty in their cure than in the first instance.

“At this period no atmospheric causes apparently existed to produce this unfavorable aspect of things. Nothing could exceed the loveliness of the weather, if I may so express myself, and if the middle of the day were warm, the morning and evening refreshed us by a most delightful temperature and cloudless sky. No rain had fallen, with the exception of one or two showers, for nearly a month, and consequently little moisture existed to produce its well-known morbid influence. Immediately after the capitulation of the city, on the 25th of September, all the wounded of the different divisions entered the town, and suitable buildings were provided for their accommodation. Upwards of two hundred officers and men from the 1st and 3d Divisions, who had been most severely wounded, were conveyed thither on the same day in litters and wagons. The wounded of the Second Division already occupied the city.

“Our camp afforded no comfort nor shelter for them beyond a few small tents and a solitary blanket laid on the ground; and

many were destitute of even this apology for a bed, having lost them on our march. Many had no other clothing than that in wear, which was not only torn and soiled in climbing over the hedges, walls, etc., during the battle, but was stiff and saturated with blood from their wounds. A few days after their reception into the hospitals, tertian intermittent fever made its appearance, attacking many of the wounded, and in the majority, retarding or completely arresting convalescence. On many of those severely wounded it exerted a decidedly pernicious influence, and no doubt contributed, in some cases, to a fatal termination. It not only attacked the wounded in the hospitals, but prevailed extensively in camp and among the population of the town and neighboring country. I cannot say to what extent this may be attributed to the putrid exhalations arising from the numerous bodies of men and horses slain in the different combats, and which had been slightly covered with earth, and emitted a most sickening and offensive effluvia. This, doubtless, contributed largely towards infecting or destroying the purity of the air, and establishing a poisonous miasm.

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“I will conclude my communication, with a statement of the number and results of the larger amputations, performed on those occasions. The total number in the three divisions of the Army was twenty-eight, *viz.*: ten in the first division, four in the second, and fourteen in the third or volunteer division. Twenty were performed on the field, or on the following morning, in the camp; the remaining eight, at subsequent periods, varying from five to twenty days. Twelve of the number, including two in those taken prisoner and operated upon by the Mexican surgeons, proved fatal, and the remaining sixteen have nearly or quite recovered. This average of mortality was not confined to our wounded. I was told by Dr. Hidalgo, surgeon in charge of the Mexican military hospital, that of thirteen amputations performed there, five had proved unsuccessful, and one case, that had recently been operated upon, appeared to me to be in a critical condition, but whether the patient died or recovered I have not learned.¹⁸ In addition to unfavorable causes, not enumerated among those I have heretofore noticed, and from which the Mexi-

¹⁸ This case subsequently proved fatal.

cans were happily exempt, was the repeated removals to which our wounded were subjected. In carrying them from the field to the camp, a distance of three or four miles, they suffered greatly; and the subsequent removal to town still farther increased the pain and danger, and in one or two cases, evidently, was productive of a fatal termination.

“With a few remarks on the appearance and condition presented by the two cases of amputations of the thigh, performed by the Mexican surgeons, in their hospital alluded to above, I will close. One of these had been operated upon on the same day with the injury, and the other some four or five days after. Neither stump on examination, after the removal of the dressings, presented any unusual appearance; on the contrary, the flaps had been neatly adjusted and brought together, and kept so by a number of interrupted sutures and adhesive straps, encircling it in every direction, and adhesion had apparently taken place, in one case along the line of divided integuments. No one judging by the external appearance of the wound, if we except a degree of paleness of the integuments of the flap and some factor, would have suspected the condition and extent of disease within. On dressing the first case and removing the lint and adhesive straps which had become somewhat offensive, the edges of the flap receded or partially separated, so as to reveal a large cavity or excavation, the whole surface of which was dark and ill-conditioned, and from the center projected the end of the bone. There were no signs or appearance of suppuration or granulation having ever taken place in the divided muscles; on the contrary, they appeared absorbed or attenuated by previous discharge, of which none existed at this time. The patient rapidly sank, and died on the fourth day after his admission into the Division hospital.

“Private Alexander, of the Baltimore Battalion, the other case, was brought to our hospital some two days after the one above. His stump presented nearly the same appearance as the first, with no indications whatever of the diseased condition within. Eleven days after his admission the flap gave way, disclosing the same appearance as in the former case, with most intolerable factor. Gangrene rapidly extended, and he died on the twelfth day after his admission, and the thirteenth from the time of the operation.

“Among other consequences arising from gun-shot wounds, in my hospital, were two cases of traumatic tetanus, both of which

proved fatal. The first case manifested itself seven days after the injury, which was a wound of the knee-joint, with a fraeture of the patella by a grape-shot. The man was brought from the camp of the 4th Infantry to the Division hospital, and was attacked a few hours afterwards by opisthotonos, followed by trismus and severe spasmodic action of all the muscles of the body. He died the same night. The other case originated from a gunshot wound of the left thigh, in which the ball passed down to the femur, six inches below the trochanters, and taking a direction upwards on the outer side of that bone, denuded it entirely of the periosteum for the distance of three or four inches, and was cut out from beneath the gluteus maximus muscle of the same side. Here the first symptoms manifesting an attack of this dreadful disease was violent spasmodic action of the muscles of the injured limb, which soon extended to those of the whole body, followed by trismus, and a certain degree of opisthotonos. He expired on the fifteenth day after receiving his wound, and nine days after being received from the Mexican hospital; having been taken prisoner and carried thither on the 21st of September, the day on which he was wounded.

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“While on the subject of wounds, and in connection with them, I will here recall your notice to a circumstance which proved extremely annoying at the time, and, in some instances, of fatal consequence to the patient, which I have described in my former communication. I allude to the myriads of maggots that infected every wound dressed on the field, and which in an incredibly short period from the time of deposit of the ova of the fly were burrowing and nestling in every part of it, requiring the greatest labor and perseverance to effect their complete expulsion, and which in some cases was impossible. I little imagined at that time that these formidable insects would actually invade during sleep the nasal passages and the mouth, and deposit their ova. Such has occurred recently here in two cases which fell under my observation. I shall report them now, more from their singularity than any practical benefit which can possibly be derived from a notice of them.

“Case 2d.—Carpenter, a private of a company of Texan Rangers, was removed from the field hospital in camp to the general

hospital in town, in consequence of repeated epistaxis or hemorrhage from the nose, which had occurred for several successive days, and was arrested with great difficulty at each time. His features were greatly swollen, with inflammation of the nose and adjacent parts. The man complained at the time of irritation, and something, as he described, moving in his nostrils. These, on examination, appeared to be closed up, and the source of irritation revealed itself by the discovery of a large quantity of maggots, of a large size, filling each cavity and manifesting the greatest activity. On inquiry into the history of the case, I found that this man had, some days previous, after sleeping soundly during the day under the shade of a tree, been seized shortly afterwards by tickling and irritation in the nostrils, followed by inflammation and swelling of the nose internally and externally; and subsequently, when ulceration took place, by hemorrhage. The first object in the treatment of the case was of course the expulsion of the worms, which were evidently the source, as well as the continuance, of the mischief. With this view, calomel was blown through a quill far into each nostril, and afterwards spirits of turpentine freely applied by means of a feather immersed into it, and introduced as far as possible. These applications had the effect of bringing away a great number, which relieved him considerably; but the irritation caused by the oil of terebinth obliged us to discontinue it. I then substituted a strong decoction of quassia injected frequently into each nostril, which had the effect of bringing away between 200 and 300 of these worms in one day, and, in the course of two or three days more, effected their complete expulsion, and discharged the man entirely cured. The other case was that of a teamster in the employ of the quartermasters. He, as in the former case, was brought from camp, and received into the hospital appropriated for the sick of that department of the army. His was of a much more grave and serious character than the former. On examination, the velum pend. palat. was discovered in a high state of inflammation and infiltration, resting on the tongue and completely closing the entrance of the fauces. The inflammation also extended to the parotid and sublingual glands, accompanied by a most fetid and offensive discharge both from the mouth and nostrils. Before his entrance into the hospital he had discharged many worms. I subse-

quently ascertained he vomited and discharged by stool many more; the last, however, were all dead, and were described as of a different color (being red) from those discharged from the nostrils, and which continued until his death, some four or five days afterwards. In this miserable and loathsome condition, he was unable to speak or swallow. The history of his case was very similar to the former. He was represented as frequently sleeping during the day under the shade of some trees, and while in this condition was extremely difficult to rouse. They, moreover, described him as partially idiotic or foolish; and the supposition was that while in a state of deep and profound sleep with his mouth wide open, the fly or flies actually entered and deposited their ova. The question may arise as to whether ulceration existed before the appearance of the worms, and which by the fetid character of the discharge would naturally attract the fly, and form a fitting nidus for their eggs. Not having seen the commencement of these cases, I cannot positively assert the existence or non-existence of this state of things; but so far as I can learn from the history of both, would seem to favor the idea or belief that the fly or its larva was the original source of the mischief and disease."

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In contrast to modern methods, it is interesting to note from the above extracts that major operations (amputations) were performed on the field while under direct fire. In the World War such surgical procedures were withheld until the patient had been transported to hospitals in the rear.

The references to gangrene and to infection of wounds by maggots are also interesting.

The organization for the collection of the sick and wounded did not differ materially from that used in the latter part of the Revolutionary War or the War of 1812. Nothing of any moment was contributed by this war in the way of new or improved methods for the care and treatment of casualties.

Duncan gives the following losses in the Mexican War:

Killed and died of wounds.....	1,549
Died of disease.....	10,951
Discharged for disability.....	13,825

These figures make an interesting comparison with the losses sustained in the World War in which the losses from disease were practically equal to those from wounds. However, it must be remembered that there was practically no knowledge at that time of the infectious diseases and their spread and control. The lack of proper clothing and other supplies is harder to explain.

The sick rate from dysentery was high and the disease was spread widely through the home country by the returning troops.

Through the Mexican War, the United States acquired a tremendous strip of valuable territory including Texas and California for which \$15,000,000 was paid by the government. The army gained retirement for officers, military rank for medical officers, and the Soldiers' Home. The lesson of unpreparedness was not taken to heart, however, and we entered the Civil War again totally unready.

The Civil War

When the war began, there was no organized ambulance or field hospital service, and no organization for the collection of the wounded on the field and their evacuation to hospitals in the rear. Hospitals were hastily improvised in hotels, barns, and near-by private houses. The introduction of rifled arms had immensely increased the range of rifle fire and the fixed ammunition had vastly increased the rapidity of fire. Wounded were scattered widely over the field, rendering aid to them a much more difficult matter. In the early days wounded lay on the battlefield for many hours and frequently for days before they were evacuated to the rear. This of course complicated the chances for their recovery to a decided degree.

Duncan relates that, on two occasions, evacuation to Washington was attempted by commandeering 100 rickety hacks and hucksters' wagons from that city. There was, therefore, no effective way of getting the wounded from the firing line to hospitals in the interior in reasonable time. The effect upon morale was l

Jonathan Letterman became med
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2, 1862, his plan for an Ambulance Corps was put into effect by McClellan and later by other commanders. From this time on evacuation from the front steadily improved and Letterman's plan was incorporated by Congress in the Act of March 11, 1865. To Letterman, therefore, goes the credit not only for developing the principles which solved evacuation for the period of the Civil War but also for laying down the principles which have formed the foundation for the system of evacuation in use to-day.

Letterman's work included three great improvements in methods of evacuation, which may be described briefly as follows:

(a) *Ambulance Corps.*

This provided for an ambulance corps for each army corps. Two-horse vehicles with two litters each were provided in the proportion of 3 for each regiment of 500. The personnel consisted of a captain as commandant, with one lieutenant for each division or brigade, one sergeant for each regiment, two privates and one driver for each ambulance, and one driver to each medicine wagon. The personnel was under the control of the medical director, and use of the ambulances for any purpose other than evacuation was forbidden. This was a tremendous step in advance. The system was first tried out at Antietam (September 17, 1863), and demonstrated its worth though beset with many difficulties in the way of securing ambulances, equipment, and supplies.

(b) *Supplies.*

Prior to this time, supplies had been distributed by a regimental system. This system had not worked well and there was either an excess or an actual shortage, resulting in either suffering from a lack of supplies or reckless waste when their bulk made them difficult to transport. In his supply table of October 4, 1862, Letterman inaugurated an economic selection of the amounts of different medicines and equipment to be transported. He thus reduced the number of supply wagons by nearly one-half.

(c) *Mobile Field Hospitals.*

Under the old system, there were stationary regimental (tent) hospitals, and base hospitals improvised in large buildings in

interior towns. Letterman's *Circular* of October 30, 1862, introduced the mobile field hospital. This consisted of tents and equipment, with appropriate medical and surgical personnel, for receiving and treating the wounded prior to their evacuation to base hospitals in the rear.

This completed the system and was the greatest advance made up to that time in the orderly collection, early treatment, and evacuation of the wounded.

The first ambulances furnished in 1861 were light two-wheeled carts of the Larrey type.

Baron Dominique-Jean Larrey (1766–1842) served with Napoleon in his various campaigns. He soon noted that, in consequence of the old 18th century rule of relieving the wounded only after a battle, transportation to base hospitals occupied a day or more.

Larrey decided that it was better to send the hospital to the patient and developed the celebrated "ambulances volantes" (1792). They were of two kinds—light, closed two-wheelers carrying two wounded men each, drawn by two horses, and heavier four-wheelers carrying four men and drawn by four horses. These wagons were fitted with removable litters and carried refreshments and bandaging materials.

The two-wheel carts were very uncomfortable and were soon replaced in the Civil War by capacious four-wheelers of varying types.

The base hospitals, both Union and Confederate, were at first located in hotels, factories, warehouses, schools, etc., to which were added additional wards as the wounded arrived in large numbers. Later, separate groups of wooden pavilions were constructed, similar to the cantonment hospitals erected in the World War.

The losses in the Civil War were as follows for the Union forces only:

Killed	67,058
Died from wounds	43,012
	<hr/>
	110,070
Died from disease	224,586
Died—unknown causes	24,942
	<hr/>
	359,598

This was far better than in the Mexican War, but it will be noted that deaths from disease were at least twice as great as deaths from wounds. Modern medicine with its exact knowledge of the methods of prevention of many of the infectious diseases had not yet come into its own.

The Army Medical Museum was founded August 1, 1862, as a result of the collection of pathological specimens, projectiles, etc., from the battlefield.

Another outstanding medical figure of the Civil War period was John Shaw Billings, a Regular Army surgeon, whose splendid work in so many fields was continued for almost fifty years after the close of the war. He is best known probably by his work in developing the Library of the Surgeon-General's Office in Washington, D. C. At the outbreak of the Civil War, this library consisted of about 1,000 volumes. Through the energy and splendid ability of Billings, it became the largest medical library in the world.

Aside from his being the greatest medical bibliographer of his time, Billings was marvelously versatile. He was an able operative surgeon during the Civil War, an authority on military medicine, public hygiene, sanitary engineering, statistics and hospital construction, the author of a critical account of American medical literature (1876) and of the history of surgery (1895). After his retirement from the Army in 1895, he became for a short period professor of hygiene at the University of Pennsylvania. At the end of a year, however, he resigned to take up his duties as director of the New York Public Library in 1896. In this capacity he supervised the selection of the site, prepared the competition for the exterior, prepared with his own hands the plans of the interior arrangement of the building as it now exists, and served as its guiding spirit until his death in 1913.

Another monument to his genius is the Johns Hopkins Hospital, of which he was the designer. He also designed the Peter Bent Brigham Hospital in Boston as well as other modern hospitals.

From the above, it is seen that Billings did an enormous work for the advancement of American medicine. He was easily one of the greatest figures ever connected with the U. S. Army Medical Corps.

In the World War this duty was an enormous one, and an analysis of the data obtained discloses rather a startling state of affairs in the physical condition of the youth of the nation.

The following figures need little discussion. They are taken from the official publication, "Defects Found in Drafted Men," War Department, 1920.

Number of registrants enrolled	24,000,000
Number physically examined	5,719,152
Rejected by local boards	27.99%
Rejected by camp surgeons—these had been accepted previously by local boards	7.05%

After men had been examined and accepted by local boards, they were sent to the various camps where they were again examined and classified according to their physical condition by the camp surgeons. It will be noted that the camp surgeons rejected a considerable number of men who had been accepted previously by the local boards, totalling 7.05 per cent. of the whole number of registrants who were examined physically.

The classification of these registrants at camps gave the following results:

Total number from which these figures are deduced.....	1,961,692
Without defects—62%	1,221,388
Defective—38%	740,304

The defectives were further classified as follows:

Class A—defective but fit for any duty—29%.....	557,825
Class B—those having remediable defects—0%.....	538
Class C—fit for limited service only—2%.....	43,554
Class D—rejected—unfit for any duty—7%.....	138,387

Class B appears surprisingly small, but this is due to the fact that this classification was not put into effect until late in the war. Had it been adopted earlier, the percentage coming under it would have been much greater.

The startling fact disclosed by these figures is that 35 per cent. of the youth of the country were found physically unfit for

any form of military service. This means that, if the entire 24,000,000 registrants had been called into service, approximately 8,400,000 would have been rejected. It is reasonable to assume that the young women of the country are in no better mental and physical condition than the men and that there are, therefore, approximately 8,400,000 young women possessing serious mental and physical defects. That nearly 17,000,000 of our youth possess such serious defects is a matter that should give each one of us real concern. It is a matter that touches the future welfare of the country in a vital spot, for it is undoubtedly true that many of these defectives, though not fitted for marriage, will marry and will produce more defectives.

The first question that naturally arises is, what can be done to meet this rather disturbing situation? Several lines of action suggest themselves.

1. Careful physical examination, and appropriate treatment when indicated, of school children, for it is during these early years that defects can be corrected most successfully. To be of maximum value, such examination should be repeated at regular intervals and at least once a year. I know that much highly commendable work has been done along this line but much remains to be done.

2. Annual physical examination of all individuals. The Army has required an annual physical examination for the past 18 years or so of all officers and now includes warrant officers in the requirement. Nurses come in the category of officers. It has been a most useful procedure and serves to disclose serious defects at the earliest practicable moment. Many individuals are prone to disregard symptoms, hoping that they are not of serious import. In many instances no symptoms are noticed and, except for the annual examination, defects would be undiscovered until the condition had progressed to a degree that precluded permanent relief.

There has been considerable agitation in civil life recently along this line but little real progress appears to have been made. In the Army, it is a simple problem, for the promulgation of the necessary orders insures that the project will be faithfully executed. In civil life, the problem is vastly more difficult and can only be solved, I believe, by a process of progressive education.

3. Of course, the old question of the prevention of propagation on the part of certain classes of defectives comes up, but that is an extremely difficult problem to solve and one that I do not feel competent to discuss.

It is true that a certain proportion of the rejections noted above was for defects which, while rendering the individual unfit for military duty, would not prevent his leading a fairly normal and useful existence in civil life. To counterbalance this, however, it must be remembered that certain physical standards for military service were considerably lowered during the World War and that, therefore, numbers of men were accepted who would not be accepted during peace.

This was especially true in the case of venereal diseases. This is discussed in later paragraphs.

Requirements as to height and weight were reduced from the peace-time minimum standards of 64 inches in height and 120 pounds in weight, to 60 inches in height and 110 pounds in weight.

The general causes for rejection were:

	Per cent.
1. Conditions preventing free mobility	39
2. Defects of special senses	12
3. Cardio-vascular defects	10
4. Developmental defects	10
5. Nervous and mental defects	6
6. Venereal	5.7
7. Tuberculosis	5.3
8. Nose and throat	5
9. Skin and teeth	3
10. Respiratory other than tuberculosis	1
11. Others	3
	<hr/> 100

'2) *Prevention of disease.*

Here we enter a rich field, but, in the limited time available, we can only scratch the surface. A few of the outstanding accomplishments have been selected in order to illustrate this im-

portant phase of military work and to show the results which have been achieved.

(a) *Typhoid fever.*

In past wars, this disease has been a scourge of armies in the field. Every one remembers the distressing experience with it in 1898 and that of the British in the Boer War. In striking contrast, there was never a time during the World War that the problem gave any real concern.

In the World War there were 1,386 cases of typhoid fever with 215 deaths out of a total strength of 3,703,191.

In the Spanish-American conflict, there were 20,738 cases with 1,580 deaths out of a total strength of 108,000. (Keefer, "Military Hygiene," page 62.)

If the same rate had prevailed in the World War as in the Spanish-American, there would have been slightly over 700,000 cases with 70,000 deaths in the American forces alone. If such had been the case, the query naturally arises, how long could the war have lasted with such a staggering loss from illness?

In other words, one out of every five soldiers in the Spanish-American War was attacked with typhoid fever, while, in the World War, only one out of every 2,672 was thus attacked. It is interesting to note that 90 per cent. of all deaths among soldiers encamped in the United States in 1898 were from this disease.

It is quite evident to one who saw the conditions under which our troops lived in the A. E. F. that this remarkable achievement was due practically entirely to the typhoid-paratyphoid inoculation. There are some who might contend that improved sanitation had considerable effect upon the situation, but those who were in France realize, I am sure, that sanitary conditions in the trenches and, later, on the battlefields in the open warfare, were certainly as bad as could be found in any of the camps of 1898. Flies were present in distressing numbers especially during the Chateau-Thierry campaign and had free access to numerous sources of potential typhoid infection. Water supplies in France were notorious for their practically universal pollution, so that every factor was present for a widespread epidemic except the unprotected individual.

This certainly ranks as one of the most remarkable achievements ever recorded in preventive medicine, and it is particularly pleasing to the Regular Army, for the practical application of the method was the work of its medical department under the leadership of Colonel Frederick F. Russell. It is true that the Germans had done some work along this line and the English had also tried inoculation during the Boer War, but no real results were achieved until the United States Army developed the method and demonstrated its efficiency.

(b) *Tetanus.*

In 1914, in the English forces, 32 per cent. of the wounded were infected by tetanus. In 1917, only 0.1 per cent. were attacked.

In the American forces, there were 21 cases and 4 deaths between April 6, 1917 and December 31, 1919.

The soil of France and Belgium, intensively cultivated for centuries, formed a highly favorable medium for the development of the tetanus bacillus, and an exceedingly serious situation faced the warring forces. Fortunately, a remedy was at hand and, through the use of tetanus antitoxin, the remarkable reduction shown above was accomplished.

It became routine practice to inoculate every wounded man no matter how slight the injury might be, provided of course that the skin was broken. This was done at the farthest point forward that was practicable so that the time between the receipt of the wound and the inoculation was reduced to the minimum. It was usually given at the battalion aid station. In order that those in the rear, through whose hands the patient successively passed, might know that he had been protected, a T was placed on his forehead with an indelible pencil.

(c) *Smallpox.*

The prevention of smallpox is so familiar to everybody that no discussion is called for, but two illuminating instances in modern warfare of the efficacy of vaccination are worthy of mention.

In the Franco-Prussian war, the French lost 20,000 men from this cause. They were not protected by vaccination. Under

the same circumstances, the Germans, who were protected, lost only 297.

In the Russo-Japanese War, the Japanese forces had only 362 cases and 35 deaths out of an army of over 1,000,000, though smallpox was endemic in Japan at the time.

In the World War, between April 6, 1917 and December 31, 1919, the American army had 794 cases with only 5 deaths. The total of mean annual strengths for this period was 3,703,191. ("The Medical Department of the U. S. Army in the World War." Vol. XV, Part 2, Page 576.)

(d) *Yellow fever.*

The control of yellow fever represents one of the most remarkable achievements in the history of medicine. Formerly a terror of tropical and sub-tropical countries and occasionally stretching a devastating hand into northern climes, it has been securely bound and no longer represents a menace against either commerce or military operations.

This remarkable result has been attained through the work of military medical men led by Reed and Carroll of the Regular Army Medical Corps, with whom were associated Agramonte and the heroic Lazear, who sacrificed his life in demonstrating the fact that yellow fever is transmitted by the bite of an infected mosquito.

Time does not permit our going into the details of this epoch-making work. Suffice it to say that, as a result of their labors, we now have the means of completely banishing this dread disease.

It fell to the lot of another Regular Army medical officer, Major, later Major-General, William C. Gorgas, to apply practically the discovery of the Reed board. As a result of his brilliant efforts, Havana was freed of yellow fever for the first time in 150 years and has remained free ever since.

Transferring his activities to the Panama Canal, the application of the same methods rid this formerly pestilential district of yellow fever and so reduced the incidence of malaria that the Canal Zone became almost a health resort.

To illustrate what a triumph this has been, it may be of interest to note a few of the more striking outbreaks of this disease in former times.

1664—St. Lueia Island (West Indies)	1,411 out of 1,500 soldiers died.
1665—“ “ “ “ “	200 out of 500 sailors died.
1666—“ “ “ “ “	entire population of 5,000 men, women, and children died.
1699—Philadelphia	220 deaths
1793—“	10% of population died.
1853—New Orleans	29,020 cases with 8,101 deaths.
1878—Memphis	17,600 cases with 5,150 deaths.

New York was attacked in 1668, Boston in 1691 and again in 1693, and Philadelphia was also visited in 1695.

Between 1800 and 1879, the disease was present in the United States every year but two, though it was epidemic on only a few occasions.

No cases occurred in the American forces during the World War.

(e) *Plague.*

This disease which, in former times, caused the most frightful devastation throughout the world, has been brought under control by the knowledge that it is a disease of rats transmitted to human beings by the bite of infected fleas. While prevention therefore depends upon warfare against rats and fleas, it must be remembered that the pneumonic form is also carried by infected sputum.

While not peculiarly or particularly associated with military operations, it has scourged armies in the past, especially during the Thirty Years War. Some of its most striking outbreaks merit therefore a brief recital.

1348—It has been estimated that 60,000,000 deaths, or one-fourth of the population of the earth, resulted from a pandemic

of plague. After devastating Asia and Africa, it appeared in Europe. From a focus in the Crimea, it spread *via* Turkey, Greece and Italy north and west over the whole of the continent, again attacking it from a second focus by way of lower Austria.

1630—Milan	80,000 deaths
Venetian Republic	500,000
1665—London	69,000
1679—Vienna	70,000
1681—Prague	83,000

1892-1907—Plague has caused dreadful havoc in India since 1892. In 1907, over 1,000,000 persons died of this disease in that country. (Rosenau: "Preventive Medicine and Hygiene," 1918, page 283.)

1894—An outbreak occurred in Hong Kong which, except for modern sanitary control, might easily have assumed pandemic proportions.

1907-8—Plague appeared in San Francisco. Denials were made at first that it was really plague. The United States Public Health Service was placed in charge of the situation, found plague actually existing but succeeded in stamping it out. Ground squirrels were found to be infected, and since that would require years of energy to control, California became at that time an endemic focus.

No cases occurred in the American forces during the World War.

(f) *Venereal disease.*

During peace, venereal disease is a cause for rejection for original enlistment in the United States Army.

During the World War, this was modified, the first regulations issued July 2, 1917, providing as follows:

"3. The following defects are causes for rejection:

* * *

"Syphilis when discernible by inspection and physical examination; tight urethral stricture; . . . Gonorrhea, acute and chronic, is not disqualifying, but individuals should be advised immedi-

ately to secure appropriate medical treatment pending receipt of orders to report for duty."

Regulations issued November 8, 1917, made further modifications and provided:

"Syphilis is a cause for rejection only when permanently incapacitating. Syphilis in the primary and secondary stages—that is, during the infectious period—chaneroid and gonorrhea, acute and chronic, are not disqualifying, but individuals so affected should be advised immediately to secure appropriate medical treatment pending receipt of orders to report for duty." ("The Medical Department of the U. S. Army in the World War." Vol. V, page 470.)

This was a wise policy, for there is no reason why an individual should escape military service in time of war because of an infection of this sort. Our real concern should be to get him in as good shape as possible and then require him to do his part in the defense of the nation, being especially careful however to protect his comrades from accidental infection.

In comparison with previous wars, the record of the United States Army during the World War in the control of venereal diseases was a remarkable one. This was especially true in the A. E. F. While the actual work was done by the Medical Department, too much credit cannot be given for the results in France and Germany to the Commander-in-Chief, General Pershing, for his recognition from the start of the importance of the matter and for his unceasing and vigorous support of all measures of control that were instituted. It made the work possible. Without his firm support, the results would undoubtedly have been much less brilliant.

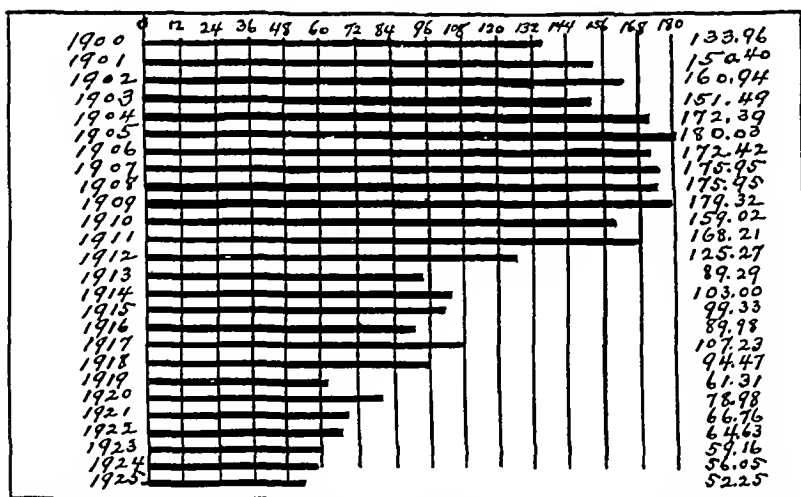
An analysis of the data obtained from official records shows not only that the Army had a splendid record in this respect but also how much cleaner the soldier was with regard to venereal diseases than the same age group in civil life.

The Army, with its control and discipline, can enforce the necessary measures. In civil life, control is very difficult and the problem is much more complex. Much public interest has been aroused and one sees a much freer discussion of this vital matter in the public press and in magazines, but a tremendous amount of work remains to be done if the nation is ever to become reasonably free from this loathsome form of infection.

In the Army, control was accomplished by periodical examinations, prophylaxis, and prompt segregation and treatment of all cases that were discovered. In addition, close coöperation with local health authorities aided materially in the discovery and control of those who might spread the disease. Prophylaxis was compulsory in the sense that if a soldier failed to avail himself of the protection thus afforded, he was subjected to court-martial. He also suffered loss of pay for the time lost from duty.

It seems to me that the control of venereal disease in civil life is one of the most important public health questions that we have to face. This is not the place in which to discuss the matter in detail, but one thought immediately asserts itself and that is, the pressing necessity for a compulsory physical examination of all individuals, male and female, who contemplate marriage. The burden of infection falls most heavily of course on the female, as a study of gynecological records will show. I have personally seen some distressing instances that would have been completely avoided if there had been a preliminary physical examination.

The following chart shows graphically the progress which has been made in the Army in the control of this class of infections. The active campaign for this purpose was inaugurated in 1909.



ANNUAL ADMISSION RATES FROM VENEREAL DISEASES PER 1,000 MALE MILITARY PERSONNEL. YEARS 1900-1925.

It will be noted that a temporary rise occurred in 1917 and 1918 as the result of bringing into the military service a large number of cases which had been incurred while in civil life. In spite of this, the rate for 1918 was lower than for any previous year except 1913 and 1916, while the rate for 1919 was the lowest recorded up to that time. That the campaign is still securing results is shown by the fact that the rate for 1925 was the lowest yet recorded.

The most striking results in the A. E. F. were obtained in the 3rd Army in Germany. For a period of 27 weeks, from December 18, 1918, to June 25, 1919, the official records show an average rate of 19.04 per 1,000 per annum as compared with a rate of 61.31 for the entire Army for the year 1919. The 3rd Army went out of existence July 2, 1919.

(g) Death rates from disease and from injury.

As a result of the improved methods for the prevention of disease as briefly outlined in the foregoing, it is very gratifying to note the great decrease in deaths from disease in comparison with previous wars.

For the first time in our history, deaths from disease were held to a point where they were almost exactly level with deaths from injury. The official figures are:

Killed in action	36,694
Died from wounds	13,691
Deaths from non-battle injuries	5,591
	<hr/>
	55,976
Deaths from disease	56,176

The latter includes the many deaths from the pandemic of influenza and also those occurring in the large number of men who never left this country and who, therefore, were not exposed to the danger of death from battle injury.

If we consider only the troops who actually served in the A. E. F., we find the significant fact that, for the first time in our history, deaths from injury far exceeded deaths from disease. It seems to me that this is a fair comparison for the reason

stated above, that the troops in the United States while exposed to all the dangers from infectious disease ran no risk of battle injury.

For the A. E. F. only, therefore, we find:

Deaths from injury	53,065
Deaths from disease	16,695

That the record would have been much more remarkable if we had been engaged in the war for a longer period is evident from a study of French records which show the following:

Deaths from injuries	1,150,000
Deaths from disease	175,000

Could anything show more vividly the progress that has been made in the prevention of disease?

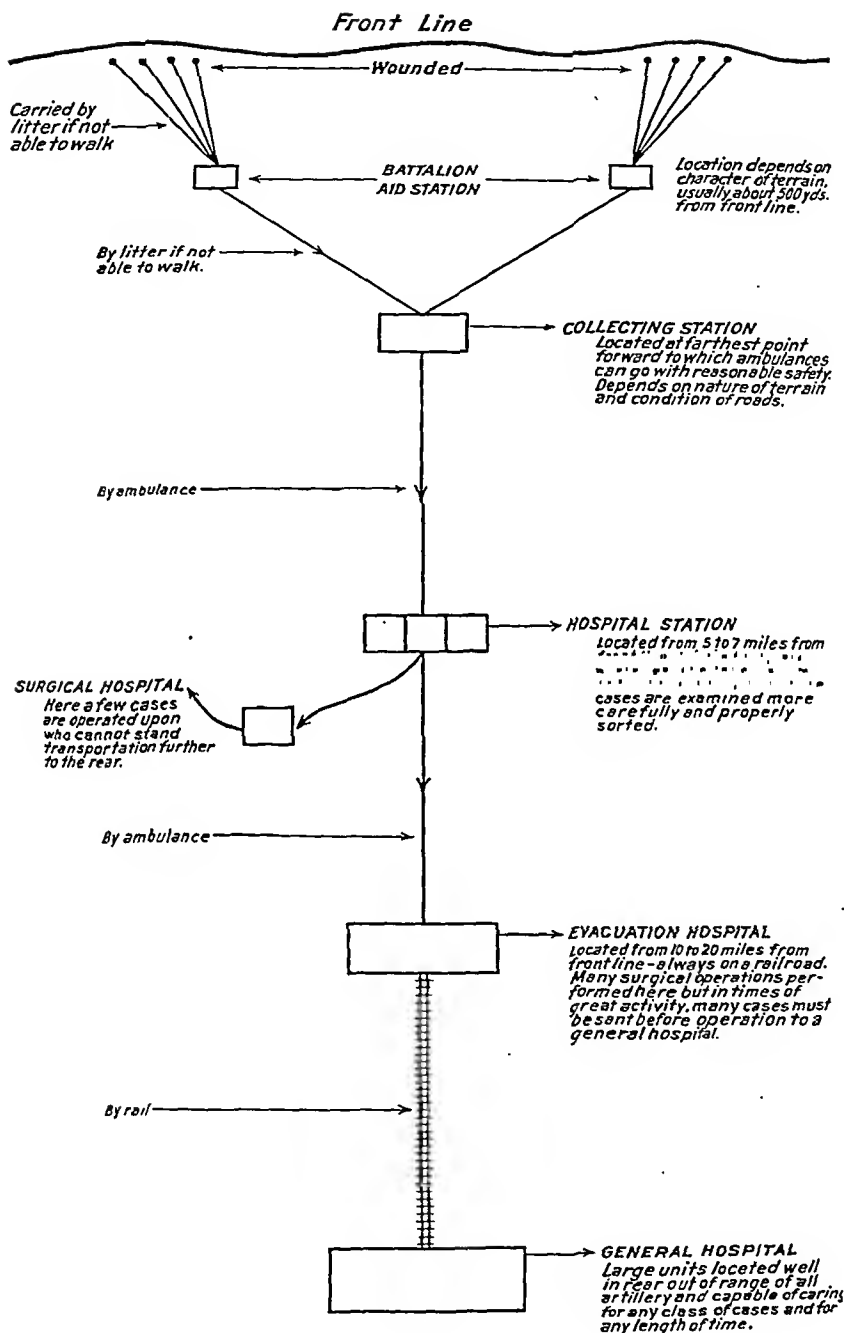
There are of course other preventable diseases which it would be interesting and profitable to discuss, but enough have been given to illustrate the remarkable advances which have been made in recent years.

(3) *Evacuation of sick and wounded.*

The following sketch shows the present organization for the evacuation of sick and wounded from the firing line back to the general hospitals. The latter units are similar to large civil hospitals and are so organized, equipped, and supplied as to be able to give adequate care and treatment to all classes of cases.

(4) *Definitive care of sick and wounded.*

Professional care of a soldier who becomes a casualty on the battlefield begins as soon as he falls into the hands of the medical department representatives who search the field for wounded. Naturally, however, treatment in the field and during evacuation must be confined to first aid until the patient arrives at an evacuation hospital. Here many operations are performed but prolonged treatment can be furnished only by organizations in the Zone of the Interior, far removed from the noise and stress of combat, namely, in the general hospitals.



It is not necessary to enter into a discussion of these units for they do not differ essentially from large civil hospitals.

(5) *Supply.*

This highly important branch of the medical service was splendidly conducted during the World War. From a wide personal experience, I can say that I never saw a time at the front when the wounded suffered from the lack of any essential element of supply.

Without reasonably adequate supplies it would be impossible to prevent unnecessary suffering, so that efficient functioning of the medical department will always depend very materially upon an efficient system of supply.

The subject is so large that it would be impossible to include a discussion which would be in any way comprehensive, so that we will content ourselves with a description of the system used at the front to prevent depletion of dressings and other essential items.

In order that a steady stream of supplies might be kept going to the front based upon actual needs, a system of exchange was inaugurated. For example, when an ambulance arrived at an evacuation hospital, there was returned to that ambulance a duplicate of everything that it had brought with it in the way of supplies. If it had four litters, eight blankets, and two Thomas splints, the same number of each was returned to the ambulance. In addition, if they required any other supplies or equipment, they were furnished on request. In this way, a constant, steady stream was always going toward the front. If it had not been for this method, there would inevitably have been times when the front line would have been out of some essential element. It was a simple system but it worked admirably. During times of stress, it was customary to send forward more than the ambulances brought with them in order to insure an adequate amount at the front when the need was unusually great.

(6) *Records.*

To many civilians coming into the military service, paper work was an unpleasant task. However, it is vitally necessary that

these records be kept for the protection of both the individual and the Government. Not only do they become of immense value for study and deduction after the war, but they are also of great importance in the establishment or denial of claims for pensions, for every wounded or sick soldier is a potential pensioner.

Justice demands that the individual be compensated for any injury sustained in line of duty by reason of his military service, but it also demands that the Government be not burdened with pensions in those cases where the disability arose prior to entry into service or where it resulted from the individual's own misconduct. Careful records are necessary to establish this fact.

Careful records are also necessary to insure that the soldier is properly paid and for various other purposes.

It is likewise important that a running record of treatment be kept for each patient from the time he is picked up on the battlefield until he reaches a general hospital. A simple field card is provided for this purpose. If this record is not kept, there is no way in which organizations in the rear may know what treatment has been administered at points farther forward, so that omissions and duplications of necessary treatment will be bound to occur.

With the foregoing rather sketchy discussion of an immense subject, we will close with the remark that the medical profession in general is justified in looking back with pardonable pride on what was accomplished during the recent conflict in the way of conserving the health and lives of those entrusted to their care.

As a result of this great experience, the country has a large body of medical men trained in actual warfare and therefore thoroughly competent to carry on in any emergency. Their numbers will steadily decrease with the passage of time but, through the agency of the Medical Reserve Corps, we now have a means of passing on to our younger brethren the lessons learned from our experience. Let us consecrate ourselves to this work, for in it lies the hope for the conservation of the man-power of the nation in any future conflict.

RECONSTRUCTION OPERATIONS ON THE HIP JOINT

E. G. BRACKETT, Boston

(Abstract of Paper Presented before the Section of Orthopedic Surgery, December 17, 1926)

The technique of the various operations for reconstruction of the hip joint has been thoroughly elaborated, but the problem of the choice as to the special operative procedure to be used as well as the question of the advisability of operation itself has been less thoroughly discussed. Three affections of the hip joint are used for illustration and for discussion in this presentation:

1. Old tubercular diseases of the hip joint.
2. Osteoarthritis of the hip, mainly of the non-articular type.
3. Ununited fracture of the neck of the femur.

In the first group, old tubercular diseases of the hip joint. No consideration is made of the early cases of tuberculous or of the question of operation in the early stages, but is confined only to these old cases, frequently regarded as cured, in which there is a fibrous ankylosis. Operation for mobilization of old tuberculous joints is not to be considered favorably. The aim in the treatment of all destructive tuberculous is to establish a bony ankylosis as a permanent and safe result, although mobilization has occasionally been attempted in the cases in which there was early ankylosis without great destruction, and in which there had resulted a firm bone in the area surrounding the joint. These cases are necessarily rare, and it is a question if this operation is ever to be considered with favor. The object of operation in the cases is to establish bony ankylosis, in place of the fibrous. The usual history in these is that of frequent exacerbations with gradually diminishing function as the patient becomes older, or more active. It must be remembered, however, that many cases with fibrous ankylosis go through life without these exacerbations, and it is not to be recommended that these cases be interfered with. When the exacerbations become frequent, operation for arthrodesis is to be advised, and although the field is through the old tubercular areas, the danger is probably less than from the frequent exacerbations and lighting up of old

disease. The operation of arthrodesis can be considered as one of a definite and sure procedure.

The cases of osteoarthritis of the hip can be divided into three groups, representing not so much the different types of the affection as the stages of development in this disease.

1. The first includes those which show only a few changes without alteration in the shape of the neck or the position of the head on the neck. In other words, no evidence of mushrooming either of neck or head, in which there is good cartilage line, and no extensive osteoarthritic changes about the margins of the joint.

2. Those in which there is still a good cartilage line, but in which there are more osteoarthritic changes around the joint, and in which there is evidence of a slight degree of mushrooming and a definite amount of atrophy of bone.

3. Cases showing advanced changes in the marked atrophy, practical loss of cartilage, more extensive osteoarthritic changes, and a definite and sometimes extensive mushrooming of head and neck.

The first group includes those in which there is a very large degree of a potential function of the joint. Operation is rarely to be considered with reference to cases in this group, except possibly in those instances where no protective care or restriction of use can be given on account of the social environment of the individual. It is necessary to eliminate to a degree excessive use of the joint, with attention to all possible sources of infection or toxemia, in order to allow many years of active use to the patient in these cases.

In the second group the operation frequently becomes a matter of decision, based on the social conditions of the case. The joint demands a definite degree of protective care and restricted use, and if the social condition of the patient permits this the individual can pursue his normal course in life for many years. It is necessary, however, that this restriction of use be given. The decision for operative interference in these cases is largely based on the factors of the social environment, and such measures are wise when such care cannot be given, and when the patient is obliged to carry on more or less of an active life. In these instances the operation of arthrodesis is preferred. The character

of the bone does not lend itself favorably to an operation for mobilization, and the cases of successful mobilization in this disease are probably among those cases which could be placed in the first group, in which the changes were not marked, and where the atrophy of the bone had not occurred.

The third group includes those in which the patient is so limited in possible activity that the choice must be made between a life of more or less invalidism, or an operation for arthrodesis. In these cases again the social factors are important, but lean much more strongly toward the operative than the non-operative side.

In the old ununited fractures of the neck of the femur in which there has been practically complete absorption of the neck, the problem is to use as much of the structures remaining as possible. Whenever the head does not show too great a degree of atrophy, and presents a well preserved cartilage line, with the absence of the osteoarthritic changes, it is wiser to use this essential portion of the joint if possible, in order to restore to the joint as nearly as possible its anatomical relation. Naturally a far more useful and functional joint can be obtained, when the head remains in its place in the acetabulum, for we have then preserved the normal structures of the joint. The method of securing this to the trochanter is frequently a matter of individual choice, whether it is by the operation of pegging, or operation of direct transplant to the trochanter. Transplant affords rather more opportunity for close apposition of the two cancellar surfaces, but either one successfully allows a firm weight-bearing angle, and a practical degree of motion.

In cases, however, in which the atrophy of the head is extreme, more particularly when there is disappearance of cartilage line in the presence of extensive osteoarthritic changes of the joint, it is not wise to attempt to use this remaining head as a functioning portion of the joint. Its removal is then, in these cases, indicated, and in its place can be used with satisfactory results the other structures, as for instance the trochanter itself, or use as a transplant other structures or bones for weight bearing, and for a lesser degree of motion. Cases that demand this treatment are those which are more severe, and in which the demand

for some operative interference is often more urgent. It is not to be expected that the same functional result can be obtained as in those cases in which the normal structure of the joint may be preserved.

PROCEEDINGS OF ACADEMY MEETINGS

March

STATED MEETINGS

Thursday evening, March 3, at 8:30 o'clock

ORDER

- I. Executive session.
Election of Fellows.
- II. Symposium:
The study of human beings in relation to disease.
 - a. Studies in the psychological panel of the human constitution, George Draper.
Discussion, Charles R. Stockard.
 - b. Types of morphological constitution and their significance in mental disease, Louis Hausman (by invitation).

Thursday evening, March 17, at 8:30 o'clock

Program presented in coöperation with the Section of Pediatrics

ORDER

- I. Executive session.
- II. A Symposium on Measles:
 - a. How shall we reduce the measles mortality? Edward S. Godfrey, Albany (by invitation).
Discussion by Shirley W. Wynue.
 - b. The etiology and prevention of measles, William H. Park.
Discussion by Thomas M. Rivers (by invitation).

- c. Management of measles in hospital and home, Henry J. Spencer.

Discussion by Rowland G. Freeman.

III. General discussion.

SECTION MEETINGS

Section of Dermatology and Syphilis

Tuesday evening, March 1, at 8:00 o'clock

ORDER

- I. Presentation of patients.
 - a. Cases from the Mt. Sinai Hospital, Hermann Goldenberg, Isadore Rosen, Walter J. Highman, Louis Chargin, Osear L. Levin, Max Seheer, Lewis Goldberger, Charles Wolf.
 - b. Cases from the Bellevue Hospital, Mihran B. Parounagian, Frederic S. Mason.
 - c. Cases from the Vanderbilt Clinic, J. Gardner Hopkins, A. Benson Cannon, George C. Andrews, Lawrence K. McCafferty, Herman Sharlit.
 - d. Miscellaneous cases.
- II. Exhibit of original papers describing skin diseases named for their discoverers, Herman Goodman.
- III. Discussion.
- IV. Executive session.

Notice: Hereafter examination of patients will be limited to Fellows and their invited medical guests.

Section of Surgery

Friday evening, March 4, at 8:30 o'clock

ORDER

- I. Reading of the minutes.
- II. Presentation of cases.
 - a. End to end suture of the brachial artery, Jason S. Parker.

- b. 1. Recurrent thyro-glossal duct. Extirpation with cure.
- 2. Epithelioma of angle of mouth and buccal mucous membrane. Operation 15 months ago.
- 3. Epithelioma of the entire lower lip. Operation with Dieffenbaeh eheiloplasty. Early result, Herbert Willy Meyer.
- e. A case of cholelithiasis with interesting preoperative history and interesting roentgenograms, Leo B. Meyer.
- d. Lung abscess, two cases, Louis Carp.

III. Papers of the evening.

- a. The present day approach to the toxic goiter patient, Donald Guthrie, Sayre, Penna. (by invitation).
- b. Embolic and metastatic phenomena in pleural and pulmonary infections, Paul W. Aschner.

Section of Neurology and Psychiatry

Tuesday evening, March 8, at 8:30 o'clock

ORDER

- I. Reading of the minutes.
- II. Papers of the evening.
 - a. On associated movements as found in invertebrates and vertebrates, including man. A study in the comparative physiology of posture, Walter M. Kraus.
Discussion by J. Ramsay Hunt, Israel S. Wechsler, Ida M. Mellen, Aquarist, N. Y. Aquarium (by invitation).
 - b. Some observations on the development of human motility, and on motor disturbances, Georg Schaltenbrand (by invitation).
Discussion by Louis Casamajor, Wilder Graves Penfield, Walter M. Kraus.

Section of Otology

Friday evening, March 11, at 8:30 o'clock

ORDER

- I. Reading of the minutes.
- II. Presentation of cases.

Eight cases of radical mastoid operations, with secondary skin graft, J. Morrisset Smith.

III. Papers of the evening.

- a. A new aid in the diagnosis of mastoiditis, Isidore Friesner.

Discussion by Lee Wallace Dean (by invitation), Donald D. Van Slyke (by invitation), Michael Heidelberger, Ph.D. (by invitation), Theodore Kuttner (by invitation), Sidney Yankauer.

- b. The use of the Carrel-Dakin solution in the post-operative treatment of mastoid wounds, Stuart L. Craig.

Discussion by Frederick Whiting, John McCoy.

IV. General discussion.

Section of Medicine

Tuesday evening, March 15, at 8:30 o'clock

ORDER

I. Papers of the evening.

- a. A resumé of diagnosis and treatment of hay fever, Albert Vander Veer, Jr.

- b. The perennial treatment of seasonal hay fever, Aaron Brown.

Discussion, Robert Anderson Cooke, George M. Mackenzie, Arthur F. Coca.

Section of Genito-Urinary Surgery

Wednesday evening, March 16, at 8:30 o'clock

ORDER

I. Reading of the minutes.

II. Presentation of instruments.

A new suprapubic suction tube, J. S. Ritter.

III. Presentation of apparatus.

A fluoroscopic screen for use in kidney operations, I. Seth Hirsch.

IV. Presentation of specimens.

- a. Fibrosis of the renal pelvis with hydronephrosis.
- b. Bilateral hydronephrosis and hydroureter caused by phimosis, C. Travers Stepita.

V. Paper of the evening.

Aplastic kidneys; a series, diagnoses and operative findings, David W. MacKenzie, Montreal (by invitation), Allan B. Hawthorne, Montreal (by invitation), from the Department of Urology, Royal Victoria Hospital, Montreal.

VI. Discussion opened by Edward L. Keyes, Joseph F. McCarthy, Paul Klemperer (by invitation).

VII. General discussion.

VIII. Executive session.

Section of Orthopedic Surgery

Friday evening, March 18, at 8:30 o'clock

ORDER

I. Reading of the minutes.

II. Presentation of cases.

- a. A case of dislocation of the patella. Operation, Samuel A. Jahss (by invitation).
- b. A case of bilateral coxa vara of unknown origin, Joseph J. Wishner (by invitation).
- c. Bifurcation operation, two cases, Walter I. Galland (by invitation).
- d. Stenosing tendo-vaginitis, H. C. Stein (by invitation).
- e. Reconstruction operation on the hip, Isadore Zadek.
- f. 1. Osteochondritis of the spine.
2. Two cases of delayed ulnar palsy. Operation, Harry Finkelstein.
- g. Oblique traction for compensation in scoliosis. Lantern slides, David R. Telson (by invitation).
- h. A case illustrating Campbell and Putti operations for flail foot, Leo Mayer.

III. Paper of the evening.

A further report on end results of an operation for drop foot, Willis C. Campbell, Memphis (by invitation).

Section of Ophthalmology

Monday evening, March 21, at 8:30 o'clock

ORDER

- I. Reading of the minutes.
- II. Presentation of new instruments.
 - a. Anterior chamber irrigator, William Brown Doherty.
- III. Presentation of cases.
 - a. A case of post-operative cyst of the iris, Ben Witt Key.
 - b. Plastic operation for restoration of eyebrow, Julius Wolff.
- IV. Papers of the evening.
 - a. Lantern slide demonstration of microscopic slides of sarcomas and gliomas, Bernard Samuels.
 - b. A discussion of some of the more common ophthalmic operations, Frederick H. Verhoeff (by invitation).
- V. General discussion.
- VI. Executive session.

Section of Obstetrics and Gynecology

Tuesday evening, March 22, at 8:30 o'clock

ORDER

Program from the Obstetrical Service of the Methodist Episcopal Hospital, Brooklyn.

- I. Case reports.
 - a. Hernia of the umbilical cord, R. M. Beach (by invitation).
 - b. Adherent placenta—some unusual sequelae, R. H. Wilson (by invitation).
 - c. Vaginal abnormalities, G. H. Davis (by invitation).
- II. Papers of the evening.
 - a. The use of x-ray in early diagnosis of pregnancy, Harvey B. Matthews (by invitation).

Discussion by H. M. Imboden, I. Seth Hirsch.

- b. The use of mercurochrome in bag inductions, H. W. Mayes (by invitation).
 Discussion by A. C. Beck, S. J. Scadron.

Section of Laryngology and Rhinology.

Wednesday evening, March 23, at 8:30 o'clock

ORDER

- I. Reading of the minutes.
- II. Presentation of cases.
 - a. Recurrent facial erysipelas, Francis W. White.
 - b. Removal of foreign body from bronchus, Joseph Coleman.
- III. Paper of the evening.
 Physiotherapy as an aid to surgical procedures in the nose and throat, John McCoy.
 Discussion opened by Charles R. Brooke (by invitation).
- IV. Executive session.

April

STATED MEETINGS

Thursday evening, April 7, at 8:30 o'clock

Program presented in coöperation with the Section of Historical and Cultural Medicine.

ORDER

- I. Executive session.
 Election of Fellows.
- II. Papers of the evening.
 Symposium: The evolution of mind.
 - a. The brain of prehistoric man, Frederick Tilney.
 - b. The cumulative nature of the mind, James Harvey Robinson (by invitation).
 - c. The concept of evolution as applied to the human mind, William A. White, Washington (by invitation).
 Discussion by Henry Fairfield Osborn (by invitation), Franz Boas (by invitation).

III. Executive session, Section of Historical and Cultural Medicine.

Nomination of officers for the ensuing year.

A collation (Loomis Entertainment Fund) will be served after adjournment, to which the Fellows and guests are invited.

Thursday evening, April 21, at 8:30 o'clock

- I. Executive session.
- II. Papers of the evening.
 - Symposium on pernicious anemia.
 - a. Laboratory aids in the diagnosis, Frederic E. Sondern.
 - b. The neurological symptoms and their pathology, Israel Strauss.
 - c. Treatment by a diet rich in liver, George R. Minot, Boston (by invitation), William P. Murphy, Boston (by invitation).
 - Discussion opened by Walter W. Palmer.
- III. Motion picture.
 - Gad's experiment showing the mitral and aortic valves in action, Robert H. Halsey.

Section Meetings

Section of Surgery

Friday evening, April 1, at 8:30 o'clock

ORDER

- I. Reading of the minutes.
- II. Presentation of cases.
 - a. 1. Lung abscess.
 2. Fat necrosis of the breast.
 3. Pseudo-recurrence after radical amputation of breast for carcinoma, Percy Klingenstein.
 - b. Sarcoma of the muscle of calf in a boy 4 years old, Philip J. Lipsett.
 - c. 1. Recurrent dislocation of the shoulder, treated by capsulorophy and transplantation of the deltoid.
 2. Cicatricial contraction of axilla and elbow following burn. Plastic reconstruction on axilla and elbow, Henry Milch.

- d. 1. Extensive squamous-cell epithelioma of hand—5 years.
- 2. Extensive squamous-cell epithelioma of lip.
- 3. Large malignant tumor of cheek—3 years, George A. Wyeth.
- e. Colic intussusception, Edward D. Truesdell.
- III. Papers of the evening.
 - a. The importance of the cystic duct to surgery, J. E. Sweet.
 - b. Mechanism and pathogenesis of acute osteomyelitis. Lantern slide demonstration, Abraham O. Wilensky.
- IV. Demonstration of instruments.
 - Modified Balfour retractor, H. Dawson Furniss.
- V. Executive session.
 - Nomination of officers for the ensuing year.

Section of Dermatology and Syphilis

Tuesday evening, April 5, at 8:00 o'clock

ORDER

- I. Presentation of patients.
 - a. Cases from the New York University and Bellevue Hospital Medical College. Presented by Howard Fox, Edward R. Maloney, Walter J. Highman, Paul E. Bechet, Eugene F. Traub, Clement J. Halperin, Rudolph Boenke, Frank C. Combes, Jr., Leo Spiegel, Josiah P. Thornley.
 - b. Cases from the City Hospital. Presented by A. Benson Caanon.
 - c. Miscellaneous cases.
 - II. Exhibit of original papers describing skin diseases named for their discoverers, Herman Goodman.
 - III. Discussion.
 - IV. Executive session.
 - Nomination of officers for the ensuing year.
- Notice: Examination of patients will be limited to Fellows and their invited medical guests.

Section of Neurology and Psychiatry

Tuesday evening, April 12, at 8:30 o'clock

ORDER

- I. Reading of the minutes.
- II. Presentation of cases.
 - a. The syndrome of the retroparotid space, with additional intracranial symptoms (presentation of patient), Angus MacD. Frantz (by invitation).
Discussion by Charles A. Elsberg.
 - b. The myasthetic syndrome due to epidemic encephalitis (presentation of patient), Charles A. McKendree.
Discussion by Walter M. Kraus.
 - c. A chondroma involving the spinal cord, Harold R. Merwath (by invitation).
Discussion by Byron Stookey.
 - d. Brain tumor simulating encephalitis (two cases; pathological specimens), Edwin G. Zabriskie.
Discussion by Foster Kennedy.
 - e. Skull fracture with unusual clinico-pathological manifestations (pathological specimen), L. Beverley Chaney (by invitation).
Discussion by C. Burns Craig.
- III. Executive session.
Nomination of officers for the ensuing year.

Section of Pediatrics

Thursday evening, April 14, at 8:30 o'clock

ORDER

- I. Papers of the evening.
 - a. Pericarditis with effusion in children. Demonstration of an unfamiliar diagnostic sign, Sidney V. Haas.
Discussion by Jacob Bower (by invitation).
 - b. A case of meningitis cured by special drainage, Wilder G. Penfield.
Discussion by Howard H. Mason.

- c. Epidemic meningococcus meningitis. Quantitative sugar content of the spinal fluid during treatment, Stafford McLean, John P. Caffey, Ruth C. Sullivan (by invitation).

Discussion by Oscar M. Schloss.

- d. Non-suppurative epiphysitis in infancy, Bernard S. Denzer.

Discussion by Arthur Krida.

II. General discussion.

III. Executive session.

Nomination of officers for the ensuing year.

Section of Orthopedic Surgery

Friday evening, April 15, at 8:30 o'clock

ORDER

I. Presentation of cases.

- a. A new device for stretching the muscles of the foot. Osteosarcoma following fracture of the femur, Henry Keller (by invitation).
- b. Traumatic separation of symphysis pubis with separation of sacro-iliac joints, Harry D. Sonnenschein.
- c. One case of epiphyseal slipping at the hip joint, with operative result.
One case of spondylolisthesis treated by bone graft, Elmer P. Weigel.
- d. Is Paget's Disease congenital? I. Seth Hirsch.

II. Papers of the evening.

- a. Regional anesthesia for orthopedic operations upon the spinal column (lantern slides), Gaston Labat (by invitation).
- b. Fracture of the fifth metatarsal bone, with especial reference to delayed union (lantern slides), Louis Carp.
Discussion by William Darrach.

III. Executive session.

Nomination of officers for the ensuing year.

Section of Ophthalmology

Monday evening, April 18, at 8:30 o'clock

ORDER

- I. Reading of the minutes.
- II. Presentation of cases.
Prepapillary vascular loop of retinal artery, Arthur M. Yudkin.
- III. Demonstration of gross and microscopie eye specimens with a discussion of improved methods of their preparation, Louis H. Meeker (by invitation).
- IV. Papers of the evening.
 - a. Cultivation of lens epithelium, Daniel B. Kirby.
 - b. The treatment of the commoner syphilitic lesions of the eye, Joseph Gardner Hopkins.
- V. Discussion by A. Benson Cannon.
- VI. Executive session.
Nomination of officers for the ensuing year.

Section of Medicine

Tuesday evening, April 19, at 8:30 o'clock

The following program is from the Herriek Clinie, Panama, R. P.

ORDER

- I. Intestinal amoebiasis with demonstration of all five species of the intestinal amoeba and sections showing the tissue lesion, William M. James (by invitation).
Discussion, Herbert Charles Clark.
- II. Executive session.
Nomination of officers for the ensuing year.

Section of Genito-Urinary Surgery

Wednesday evening, April 20, at 8:30 o'clock

ORDER

- I. Reading of the minutes.
- II. Papers of the evening.

- a. Ureter stricture—its anatomical and pathological background based upon findings in one hundred consecutive autopsies; with lantern slide demonstration, Martin Schreiber (by invitation).
 - b. The role of the ureter in diseases of the genito-urinary tract, Thomas J. Kirwin.
 - III. Discussion opened by Guy L. Hunner, Baltimore (by invitation), Edwin Beer, Nathaniel P. Rathbun.
 - IV. General discussion.
 - V. Executive session.
- Nomination of officers for the ensuing year.

Section of Obstetrics and Gynecology

Tuesday evening, April 26, at 8:30 o'clock

ORDER

- I. Program from the Jewish Maternity Hospital.
 - Case reports.
 - a. Pregnancy complicated by Hirschsprung's disease (megacolon), Mortimer W. Rodgers (by invitation).
Discussion by Albert A. Berg, C. Frederic Jellinghaus, Charles S. B. Cassasa (by invitation).
 - b. Ergot poisoning (postpartum), H. Leo Moskowitz (by invitation).
Discussion by George B. Wallace.
 - c. Placenta accreta, anatomy, genesis and clinical considerations with a report of a case, Joseph N. Nathanson (by invitation).
Discussion by John Osborn Polak, Ralph M. Beach (by invitation).
- II. Papers of the evening.
 - a. Cesarean section by a new method, George L. Brodhead, Edwin G. Langrock.
 - b. Management of labor subsequent to cesarean section, Everett M. Hawks, Samuel J. Scadron.
Discussion by John Osborn Polak, Frederick C. Holden, George L. Brodhead, Everett M. Hawks.

III. Executive session.

Nomination of officers for the ensuing year.

COMBINED MEETING

Sections of Otology, and Laryngology and Rhinology

Wednesday evening, April 27, at 7:45 o'clock

Joint meeting with the Section of Oto-Laryngology of the Philadelphia College of Physicians.

ORDER

I. Papers of the evening.

- a. The influence of rest on suppurative diseases of the basal cisterna, Wells P. Eagleton.

Discussion opened by Robert Hunter, of Philadelphia.

- b. A consideration, based on personal experience, of the various operative procedures in the treatment of sinus disease, Lewis A. Coffin.

Discussion opened by Ross H. Skillern, of Philadelphia.

II. Executive session.

Nomination of officers for the ensuing year.

RECENT ACCESSIONS TO THE LIBRARY

American text-book of operative dentistry. Ed. by M. L. Ward.
6. ed.

Phila. Lea. 1926. 818 p.

Autobiography (The) of Sir Felix Semon.

Lond. Jarrolds. 1926. 349 p.

Baetzner, W. Diagnostik der chirurgischen Nierenerkrankungen.

Berlin. Springer. 1921. 340 p.

Bálint, R. Ulcusproblem und Säurebasengleichgewicht.

Berlin. Karger. 1927. 204 p.

Bechterew, W. Allgemeine Grundlagen der Reflexologie des Menschen.

Leip. Deuticke. 1926. 436 p.

- Bensaude, R. *Traité d'endoscopie recto-colique*. 2. éd.
Paris. Masson. 1926. 178 p.
- Besredka, A. *Local immunization*.
Balt. Williams. 1927. 181 p.
- Bircher-Benner, M., & Bircher, M. E. *Sunlight (vitamine) food. Fruit dishes and raw vegetables*.
Lond. Daniel. [1926.] 52 p.
- Breitzke, H. *Pathologisch-anatomische Diagnostik an der Leiche*.
München. Bergmann. 1926. 467 p.
- Brocq, P. *Les pancréatites aiguës chirurgicales*.
Paris. Masson. 1926. 188 p.
- Brown, William. *Mind and personality*.
Lond. Univ. . . . pr. 1926. 344 p.
- Bukh, N. *Primary gymnastics*. 2. ed.
N. Y. Dutton. [1926.] 148 p.
- Buzello, A. *Die akuten eitrigen Infektionen in der Chirurgie und ihre Behandlung*.
Berlin. Urban. 1926. 494 p.
- Cheesman, J. E. *Baillière's synthetic anatomy*.
Lond. Baillière. 1926.
- Chesney, A. M. *Immunity in syphilis*.
Balt. Williams. 1927. 85 p.
- Choay, A. *La sécrétion interne du pancréas et l'insuline*.
Paris. Masson. 1926. 563 p.
- Clark, A. J. *Applied pharmacology*. 2. ed.
Lond. Churchill. 1927. 430 p.
- Clark, G. L. *Applied x-rays*.
N. Y. McGraw-Hill. 1927. 251 p.
- Congrès international (5.) d'histoire de la médecine, Genève, 20-25 Juillet, 1925. [Comptes rendus.]
Genève. Kundig. 1926. 328 p.
- Corner, G. W. *Anatomical texts of the earlier Middle ages*.
Wash. Carnegie inst. 1927. 112 p.
- Crowe, H. W. *The treatment of chronic arthritis and rheumatism*.
Lond. Oxford pr. 1926. 196 p.
- Demel, R. *Operative Frakturenbehandlung*.
Wien. Springer. 1926. 227 p.

- Dupont, R., Leroux, R., and Dalsace, J. *Technique des prélèvements et des biopsies.*
Paris. Masson. 1926.
- Ferenczi, S. *Further contributions to the theory and technique of psycho-analysis.*
Lond. Leonard. 1926. 473 p.
- Freud, S. *The ego and the id.*
Lond. Leonard. 1927. 88 p.
- Fröschels, E. *Lehrbuch der Sprachheilkunde.* 2. Aufl.
Leip. Deuticke. 1925. 530 p.
- Fuchs, E. *Lehrbuch der Augenheilkunde.* 15. Aufl.
Leip. Deuticke. 1926. 1025 p.
- Gallarardin, L. *Les angines de poitrine.*
Paris. Masson. 1925. 181 p.
- Gosset, A. *Travaux de la clinique chirurgicale de la Salpêtrière*
Sér. 1.
Paris. Masson. 1926. 243 p.
- Griffith, J. P. C., & Mitchell, A. G. *The diseases of infants and children.* 2. ed.
Phila. Saunders. 1927. 2 vols.
- Handbuch der Urologie.* Hrsg. von A. v. Liechtenberg [et al.].
v. 1.
Berlin. Springer. 1926.
- Hanzlik, P. J. *Actions and uses of the salicylates and cinchophen in medicine.*
Balt. Williams. 1927. 200 p.
- Holt, L. E. *The care and feeding of children.* 13. ed.
N. Y. Appleton. 1926. 261 p.
- Huxley, L. *Charles Darwin.*
N. Y. Greenberg. 1927. 145 p.
- Jacobson, A. C. *Genius.*
N. Y. Greenberg. 1926. 160 p.
- Johnstone, R. W. *A text-book of midwifery.* 5. ed.
Lond. Black. 1926. 508 p.
- Kapff, Sigm. v. *Die Säure-Therapie.* 2. Aufl.
München. Gmelin. 1926. 133 p.
- Keller, R. *Die Elektrizität in der Zelle.* 2. Aufl.
Mährisch-Ostrau. Kittls. 1925. 320 p.

- Kerridge, P. T. M. Principles of physical chemistry.
Lond. Oxford pr. 1926. 134 p.
- Kowarschik, J. Die Diathermie. 5. Aufl.
Wien. Springer. 1926. 239 p.
- Langeron, M., & Rondeau du Noyer, M. Coprologie microscopique.
Paris. Masson. 1926. 132 p.
- Lenk, R. Index and handbook of X-ray therapy.
Lond. Oxford pr. 1926. 121 p.
- Lereboullet, P. La grippe.
Paris. Baillière. 1926. 144 p.
- Lucas, W. P. The modern practice of pediatrics.
N. Y. Macmillan. 1927. 962 p.
- Maelean, H., & Maelean, I. S. Lecithin and allied substances.
New ed.
Lond. Longmans. 1927. 220 p.
- Marfan, A. B. Les vomissements périodiques avec acétonémie.
2. éd.
Paris. Masson. 1926. 85 p.
- Martinet, A. Thérapeutique clinique. 3. éd.
Paris. Masson. 1926. 1608 p.
- Mayo Clinic. Physicians of the Mayo clinic and Mayo foundation.
Phila. Saunders. 1927. 578 p.
- Michaelis, L. Hydrogen-ion concentration. v. 1.
Lond. Baillière. 1926.
- Müller, A. Die Massage der inneren Geschlechtsorgane beim Manne und Weibe.
Bonn. Marcus. 1926. 123 p.
- Munro, D. G. M. The psycho-pathology of tuberculosis.
Lond. Oxford pr. 1926. 92 p.
- Nobécourt, P. Clinique médicale des enfants.
Paris. Masson. 1926. 404 p.
- Orlowski, P. Die Behandlung der Gonorrhöe des Mannes.
2. Aufl.
Leip. Kabitzsch. 1927. 194 p.
- Palmer, M. D. Lessons on massage. 6. ed.
N. Y. Wood. 1927. 320 p.
- Pancoast, H. K., & Pendergrass, E. P. Pneumoconiosis.
N. Y. Hoeber. 1926. 186 p.

- Pascal, C., Davesne, J. *Traitement des maladies mentales par les choes.*
Paris. Masson. 1926. 182 p.
- Planck, M. *Treatise on Thermodynamics.* 3. ed.
Lond. Longmans. 1927. 297 p.
- Plaut, F. *Paralysestudien bei Negern und Indianern.*
Berlin. Springer. 1926. 98 p.
- Porter, C. *Elements of hygiene and public health.* 2. ed.
Lond. Oxford pr. 1926. 425 p.
- Potet, M. *Hygiène mental.*
Paris. Le Francois. 1926. 599 p.
- Price, F. W. *Diseases of the heart.*
Lond. Oxford pr. 1927. 584 p.
- Proceedings of the nineteenth and twentieth conferences of the American association of medical milk commissions.*
1925-26.
- Proceedings of the optical convention.*
Aberdeen. Univ. pr. 1926. 2 vols.
- Pütter, A. *Die Drei-Drüsentheorie der Harnbereitung.*
Berlin. Springer. 1926. 173 p.
- Ritter, W. E. *The natural history of our conduct.*
N. Y. Hareourt. 1927. 329 p.
- Rollier, A. *Heliotherapy.* 2. ed.
Lond. Oxford pr. 1927. 318 p.
- Sander, C. G. *Colour in health and disease.*
Lond. Daniel. 1926. 77 p.
- Schmitz, E. *Kurzes Lehrbuch der chemischen Physiologie.*
2. Aufl.
Berlin. Karger. 1927. 384 p.
- Schoen, M. *Le problème des fermentations.*
Paris. Masson. 1926. 199 p.
- Schreiber, G. *Deutsche Medicin.*
Leip. Quelle. 1926. 107 p.
- Shaw, D. M. *Dental prosthetic mechanics.*
Lond. Arnold. 1927. 373 p.
- Smith, H. E. *Applied refraction.*
N. Y. Wood. 1927. 131 p.
- Solomon, I. *Précis de radiothérapie profonde.*
Paris. Masson. 1926. 512 p.

- Sternberg, C. Der heutige Stand der Lehre von den Geschwülsten. 2. Aufl.
Wien. Springer. 1926. 136 p.
- Stratz, C. H. Lebensalter und Geschlechter.
Stuttgart. Enke. 1926. 194 p.
- Transactions of the American laryngological, rhinological and otological society, inc.
1926.
- Transactions of the American neurological association.
1925.
- Transactions of the American therapeutic society.
1925-26.
- Transactions of the thirtieth annual meeting of the American academy of ophthalmology and oto-laryngology.
1925.
- Troup, W. A. Ultra-violet rays in general practice.
Lond. Lewis. 1926. 59 p.
- Volkman, J. Die Vorbereitung zu chirurgischen Eingriffen.
Berlin. Springer. 1926. 238 p.
- Walker, K. M. The enlarged prostate.
Lond. Oxford pr. 1926. 193 p.
- Waring, Sir H. J. Manual of operative surgery. 6. ed.
Lond. Oxford pr. 1927. 868 p.
- Wechsler, I. S. A text-book of clinical neurology.
Phila. Saunders. 1927. 725 p.
- Wertheimer, F. I. & Hesketh, F. E. The significance of the physical constitution in mental disease.
Balt. Williams. 1926. 76 p.
- Wertheimer, P. & Bonniot, A. Chirurgie du sympathique.
Paris. Masson. 1926. 134 p.
- Winter, G. Der künstliche Abort.
Stuttgart. Enke. 1926. 126 p.
- Wood, T. D. & Rowell, H. G. Health supervision and medical inspection of schools.
Phila. Saunders. 1927. 637 p.
- Woodward, A. S. Manual of medicine. 3. ed.
Lond. Oxford pr. 1927. 523 p.
- Wrede, F. Chemische und physiologisch-chemische Übungen für Mediziner.
Berlin. Karger. 1927. 323 p.

- Wright, S. Applied physiology.
 Lond. Oxford pr. 1926. 418 p.
 Ziemann, H. Hämatologisches Praktikum.
 Berlin. Karger. 1927. 166 p.

ANNOUNCEMENTS

FELLOWS ELECTED APRIL 7, 1927

Charles Eastmond, M.D., 483 Washington Avenue, Brooklyn.
 David Stanley Likely, M.D., 200 West 59th Street.
 Cora Hennen Morris, M.D., 925 Park Avenue.
 Lester Jarecky Unger, M.D., 135 East 74th Street.
 Sydney Weintraub, M.D., 16 Park Avenue.
 Jerome Martin Ziegler, M.D., 51 East 90th Street.

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Application for this service should be made through the Librarian.

Medical Portraits

The Library is anxious to increase its collection of medical portraits. Fellows are requested to send to the Library their photographs and other medical portraits which they might like to present.

Luncheon Service

A caterer is now serving a simple luncheon of two courses to the Academy staff. Different dishes are served daily and no special dish may be ordered. The price is 35 cents.

The House Committee has agreed to have luncheons served in the reception room to Fellows of the Academy. Any Fellow desiring luncheon must notify the Academy telephone operator not later than 11 A. M.

DEATHS OF FELLOWS OF THE ACADEMY

ARTHUR ALBERT BOYER, M.D., A.B., 114 East 54th Street, New York City; graduated in medicine from the College of Physicians and Surgeons, New York City, in 1887; elected a Fellow of the Academy October 6, 1904; died January 12, 1927. Dr. Boyer was a Fellow of the American Medical Association.

HENRY W. FRAUENTHAL, A.C., M.D., 18 West 70th Street, New York City; graduated in medicine from Bellevue Hospital Medical College in 1890; elected a Fellow of the Academy April 7, 1898; died March 11, 1927. Dr. Frauenthal was a Fellow of the American Medical Association, a Fellow of the American College of Surgeons, a member of the American Electrotherapeutic Society; physician and surgeon-in-chief of the Hospital for Joint Diseases, and consulting physician at the Orthopedic, Jewish and Maternity Hospitals.

ALBRO RICHARD CARMAN, M.D., 44 West 96th Street, New York City; graduated in medicine from the University and Bellevue Hospital Medical College in 1879; elected a Fellow of the Academy May 7, 1885; died March 31, 1927. Dr. Carman was a Fellow of the American Medical Association, a Fellow of the American College of Physicians and a member of the National Tuberculosis Association.

CHARLES HOWARD PECK, M.D., 30 West 50th Street, New York City; graduated in medicine from the College of Physicians and Surgeons, New York City, in 1892; elected a Fellow of the Academy May 5, 1898; died March 28, 1927. Dr. Peck was a Fellow of the American Medical Association, a Fellow of the American

College of Surgeons, a member of the American Surgical Association, a member of the International Surgical Society, a member of the American Thoracic Surgical Society, a member of the American Society of Clinical Surgeons, a member of the New York Surgical Society and a member of the Southern Surgical Association. He was Professor of Clinical Surgery at the College of Physicians and Surgeons, surgeon to Roosevelt Hospital, and a member of the Alumni Association of New York Hospital.

WILLET STUART BROWN, M.D., Sanford Hall, Flushing, New York; graduated in medicine from the College of Physicians and Surgeons, New York City, in 1891; elected a Fellow of the Academy May 2, 1895; died April 2, 1927. Dr. Brown was a Fellow of the American Medical Association and a member of the American Psychiatric Society.

GEDIDE ABRAHAM FRIEDMAN, M.D., 63 East 84th Street, New York City; graduated in medicine from The Imperial University, Dorpat, Russia, in 1894; elected a Fellow of the Academy December 3, 1908; died April 4, 1927. Dr. Friedman was a Fellow of the American Medical Association, a Fellow of the American College of Physicians, a member of the Pathological Society; visiting physician at Beth David Hospital and gastro-enterologist at Gouverneur Hospital.

ROBERT FULTON WEIR, A.B., A.M., M.D., 16 East 96th Street, New York City; graduated in medicine from the College of Physicians and Surgeons, New York City, in 1859; elected a Fellow of the Academy June 20, 1866; died April 6, 1927. Dr. Weir was President of the Academy in 1901 and 1902. He was a Fellow of the American Medical Association, a Fellow of the American College of Surgeons, a member of the American Surgical Society and consulting surgeon to Roosevelt, New York and St. Vincent Hospitals.

WALTER BELKNAP JAMES, A.B., M.D., 7 East 70th Street, New York City; graduated in medicine from the College of Physicians and Surgeons, New York City, in 1883; elected a Fellow of the Academy June 6, 1889; died April 6, 1927. Dr. James was President of the Academy 1915 to 1919. He was a Fellow of the American Medical Association, a member of the American Physicians' Society and a member of the Pathological Society.

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THE PHILOSOPHY OF HISTORY

JOHN C. HEMMETER, Baltimore

*Presented before the Section of Historical and Cultural Medicine,
February 24, 1927*

INTRODUCTION

Hippocrates says somewhere, “*ἰατρὸς φιλοσοφὸς ἰσοθεὸς*
“God-like is the physician who is a philosopher.”

It will be expedient to begin by giving some of the modern *Definitions of Philosophy*: In the following I shall present those Of Driesch—“Philosophy as the understanding of givenness by ‘Experience’ must be one.”

Of Lotze—“It is an endeavor to import unity and connectedness into the scattered directions of cultured thought, to follow each of these directions into its assumptions and into its consequences, to combine them all together, to remove their contradictions, and to form out of them a comprehensive view of the world; mainly, however, to subject those ideas which science and life regard as *principles* to a special scrutiny, in order to determine the limits of their validity.”

Of Merz—“Philosophy may thus be defined as speculation carried on according to some clear method, and aiming at systematic unity.” “. . . in the second we have to consider it as its own object, as a reflection on itself, carried on with the object of knowing its own origin, its laws, its validity, of certainty, completeness, and unity.”

Of Ostwald—“The definition upon which the most representative philosophers would agree would probably be the follow-

ing: that philosophy is that part of knowledge which aims to bring together the generalities of the individual sciences and to unite them into an invariably connective whole or entirety."

Of Merz (a second definition)—"This is covered by all such intermediate thought as rests partly on knowledge, partly on faith, where certainty is largely mingled with belief. This large intermediate region, where changes and fluctuations are frequent and rapid, is the proper home of philosophy, which occupies itself with the grounds of certainty and belief, the origin of knowledge and faith, and the relations in which both stand to each other."

Before entering into the details of a study of the philosophy of history, it will be unavoidable to give a brief consideration to the mental apparatus and technique which historians as well as philosophers employ to penetrate into this subject and also for the purpose of mutually understanding each other. For this purpose, I concluded it was expedient to enter upon a brief consideration of the CATEGORIES (page 2-A, section B).

HISTORIC PHILOSOPHY

Address

(1) History, Historic Science, Historiography and Historic Process are four different concepts.

There are three kinds of Historic Science.

(1) Narrative.

(2) Pragmatic.

(3) Genetic Historic Science.

(2) For further penetration into the essence of historic process, historians need the cooperation of philosophers, biologists and philologists. Our present languages of contemporaneous nations are inadequate to convey the meaning of deeper thoughts from one language into another, but more than that there are certain very deep thoughts or rather feelings, intuitions that baffle expression in any language (Merz, Vol. 3, p. 136, on *Kant's Terminology* in Baldwin's Dictionary of Philosophy, three volumes, 1901). In an article contributed by Josiah Royce, who also writes on *Hegel's terminology*, is contained a reference to *Eucken's History of Philosophical Terminology*. He states that

Mellin had written a six-volume analysis of Kant's Vocabulary in 1797 and yet Josiah Royce could say in 1901, one hundred years later, that "a thorough history of Kant's terminology is still to be written."

Solomon Maimon (1757-1800) after having studied the philosophies of Spinoza, Leibniz, Locke and Hume, came to study Kant's Philosophy. Kant himself had a high opinion of Maimon's ability and went to great length to say that he was the one of his followers who had understood him best. Maimon undertook to write a dictionary of philosophy, evidently recognizing the important part which verbal terms play in philosophy. (Merz 317.)

At the Sixth International Congress of Philosophy, Cambridge, Mass., September 13, 1926, the necessity of mutual understanding of terms and definitions by the philosophers of this and other countries must have been felt so keenly that the abstracts of the addresses by the various eminent philosophers in the sections which I attended consisted almost exclusively of definitions. The Congress was held from September 13-17, at Cambridge, Mass. On Tuesday, September 14, Professor E. B. McGilvary spoke on "Newtonian Time."

The great German philosopher, Herman Weyl, now at the University of Zürich, spoke on the "Time Relationships in the Cosmos." Professor A. N. Whitehead, of Harvard, also presented a paper on "Time" and E. V. Vassilieff, of Moscow, was represented by an address on "The Acquisitions and Enigmas of the Philosophy of Nature."

All of these papers were presented to the audience in the form of typewritten abstracts which were essentially definitions of various terms. I observed in the discussion that the philosophers were not in agreement among themselves as to what meaning should be precisely attached to any given word. Evidently a much greater degree of misunderstanding would ensue if biologists and historians were obliged to participate in such discussion. Professor E. G. Spaulding, of Princeton, who acted as Chairman of the Section One, Division A, requested me to act as interpreter for Professor Herman Weyl and in my efforts to make the remarks of the various discussions mutually intelligible, I became convinced of the urgent necessity of a Diction-

ary of Philosophy capable of being understood not by philosophers alone nor by biologists and historians alone but by all of them in general. This will require the cooperation of philologists with philosophic and historical training, but until this is done the history of philosophy will lack an effective vocabulary and correct diction.

Before continuing, I wish to make my stand clear concerning two prevalent problems in the writing of history, particularly medical history. These two problems concern (1) the succession of old doctrines by new ones, and (2) whether this succession is a simple accumulation, *i.e.*, merely adding one new thing to an older thing or whether it is an evolution. Surveying the total domain of biology historically, we can collect the material for the distinction between two kinds of knowledge. First, that which is actually demonstrable and well founded; second, that which is taken over from others. In other words, between (1) real and rationally grounded, and (2) accepted knowledge.

In aiming at this distinction, one arrives at two general rules. *First*, a general doctrine is not objectively overcome by another or subsequent doctrine, but that history shows that old doctrines outlive themselves and pass into oblivion, by agitation which criticizes only the surface of the old theory, and that a former doctrine is not deserted because its incorrectness is recognized, but for other not simply logical reasons. *Second*, the history of biological thought is not a mere succession of theories, but if the generality of things is held in view, history is an evolution of inwardly connected thought. This opinion, as we shall see later, is opposed to that of H. Driesch.

Definitions of Historical Science: Historical science is the science which deals with the facts of development of human beings as they occur in space and time. This development meaning the activities of human beings as social entities in connection with psycho-physical causality. Human activities may be of three kinds: (1) Singular activities, (2) typical and (3) collective activities. The development that is spoken of in this definition of historic science differs from the general biological development in this—historic science deals with the activities of human beings as social entities. By social entity is meant a subject in whose being is contained the power to act in a purposeful manner with ever-increasing and expanding consciousness.

In studying history, it is necessary to pay attention to causes of activities. Every historian would like to know the cause in any event that occurs, or any thing that happens. There are general and specific causes and conditions and it is not always wise to seek for specific causes when not immediately apparent. If we can find a general cause and elucidate the condition of a connection between historic facts, we are making a step forward even when a special cause is not obvious. (Bernheim, p. 633.)

The general causes and conditions are: (1) The state of the environment of various human beings in the different geographic regions. These are: (1) The distribution of land and water, of mountains and plains, the chemical and geological conditions of the soil, the climate, the fauna and flora, the prevalent phenomena of nature, whether volcanic or tranquil, the physical stature of man, the psychic qualification of man and the characteral dispositions connected therewith.

Eventually, we must also class the social world of values which emanate from the reciprocal inter-action between man and external nature and which integrate to form the state of any period of culture, *i.e.*, language, morals, religion, commerce, arts and sciences, law and state constitution, social and economic customs, etc. H. Taine, *Histoire de la littérature anglaise*, groups most of these factors and conditions under the word *milieu* which has been adopted by Comte, who, however, restricts this conception by defining it as the "*Totality of exterior circumstances of any generation necessary for the existence of each determined organism.*" Taine, however, distinguishes between internal and external milieu. By exterior milieu he means the environment of nature; by interior he means the effects of the human environment on itself. The socialists define these two as "the natural and artificial milieu." A. D. Xenopol (*Fundamental Principles of History*, 1899) deduces all historic phenomena from two causalities: (1) General forces, (2) individual forces. The latter he calls "*circumstances*" because they are manifestations of forces as they are modified and transformed by particular circumstances, but in such a manner that the element of individuation gains more and more influence as the living organisms become higher organized.

Various Types of Historiography as Due to the Different Perspectives of the Historian: There are very few historians who

reach such mastership that their presentations exhibit a uniformly controlled study of all the factors that I have mentioned. It is regrettable that too often their mind has been dominated by one single perspective. One writer (Karl Marx) will be controlled by the economic materialism; another by philosophic ideas; another by the environment of nature, etc. Bernheim (*Lehrbuch der Historischen Methode und der Geschichtsphilosophie*) stigmatizes this narrow practice very well when he declares that it would be very one-sided if everybody considered *that* as the most essential part of history which he, himself, is especially interested in, or with which he occupies himself more particularly, *i.e.*, if the geographer wrote a history from the standpoint of natural influences, the anthropologist from the standpoint of race, the philosopher from the standpoint of ideas, the mathematician from the standpoint of reason, etc. Enough has been emphasized in this connection to demonstrate the necessity of a very broad and generalizing aspect of all of the external and internal factors of history in order to produce the effect of reality in our historical presentations.

Categories: According to Aristotle and Kant. In their relation to historic science, the term category has come down to us from Aristotle, one of whose books is so named. *The Categories or Predicaments* are to be understood as an attempt of a comprehensive classification of all that exists for the purposes of logical affirmation, proof or disproof. The following are among the categories: Quantity, quality, substance, relation, action, passivity, position in space, position in time, possession, situation. In my endeavor to show that there are certain mental qualities which a historiographer makes use of sometimes unconsciously, I do not refer to the categories of Aristotle, but to the categories of Kant which are conceived under an entirely different point of view. Kant's categories refer to *certain forms supposed to be inherent in the understanding itself, under which the mind embraces the objects of actual experience*. The Kantian philosophy supposes that human knowledge is partly made up of the sensations of outward things—color, sound, touch, etc.—and partly of intuitions existing in the mind prior to all experience of the actual world. This is the point of difference between the school of Locke—who rejected all innate ideas, conceptions, or forms—and the school of Kant. No such

question was asked under the Aristotelian categories. Kant's enumeration of his innate forms is as follows: (1) Quantity, including unity, multitude, totality; (2) quality, including reality, negation, limitation; (3) relation, including substance and accident, cause and effect, action and reaction; (4) modality, which includes possibility, existence, necessity. These indicate the elements of our knowledge *a priori*; it being the opinion of the author that such notions as causation, necessity, etc., cannot be obtained from the exercise of our senses and intelligence upon the world of realities, but must have been somehow or other imprinted upon the mind originally.

Kant, in trying to define the categories which lie at the basis of the world of thought, had simply accepted those categories which he observed to be in use in our daily thinking and in science. He treated them as a fixed set of principles. Regarding the origin and the mutual relations of these categories he has no extended theory. The categories are, for him, ultimate facts of our intelligence, determining its constitution, but of unknown source. Hegel, on the contrary, regards it as one of the principal tasks of philosophy to show why and how we come by just these categories which we use in the interpretation of experience, and in the ordering of life. His principal work, the "Logic," is devoted to such a treatment of the categories. And in fact, since, from Hegel's point of view, the world of "Thought" is the only real world, or, in other words, since the constructions of that absolute process which embodies itself in our thought and in our life are constitutive of *all* truth, this logic, which is to show the true genesis and nature of the categories, takes the place of all that, in the older philosophical systems, had been called metaphysics. For the theory of the absolute constructive process which expresses itself in our experience and in our thinking is simply the theory of the universe. There is no other world to know than this world which thought constructs, which experience observes, and which constitutes our life and its meaning. (Quoted from the article on Hegel by Josiah Royce in *Encyclopaedia Americana*, Vol. 14.) It must be evident, even to minds untrained in philosophical analysis, that such a mental equipment as the categories of Kant must inevitably play an important part in historic science and historiography. There is one

department of knowledge where we know positively that history has happened and we also know some of the factors concerned in it. In fact, Driesch states that this is the only field in which we know there actually are historical facts, and yet none of this history can be understood by us except through the agency of a psychic *modus operandi*, the categories. One of the most modern of all biologic philosophers, Driesch, in *The Science and Philosophy of the Organism*, devotes thirty pages of Volume 2 of this work to his interpretation of the Kantian Categories in order to make clear his conception of Entelechy. The word Entelechy is taken from Aristotle and means something at work in life phenomena which bears the end in itself, ὁ ἔχει ἐν αὐτῷ τὸ τέλος. In order to understand his conception of the categories and their applications to Historic Science, it is necessary to quote Driesch from page 297 of his 2nd Vol. (1. c.) Category is a constituent of the irreducible conceptual scheme according to which reality becomes the object of human consciousness. A category is a certain concept or proposition which is applied in any attempt to understand the given. It seems to me that there is hardly any doubt with regard to the mere presence of such categories in the human mind. Even Hume and his modern disciples would not deny it, though they see nothing more in the pre-categorical system than the mere effects of a "habit" or "economy" of the mind, which may be strengthened by inheritance. We ourselves do not believe that individual habits or economy would have been able to endow the categories with the character of absolute validity which they undoubtedly possess—at least with regard to the subject; and to admit any kind of "inheritance" with regard to them would seem to us both metaphysical and self-contradictory, for the concept of inheritance is itself a result of categorical conceiving.

The Categories of Causality and Substance: Categories render experience possible with regard to all that is given except themselves, they being experienced immediately, and irreducibly during our becoming conscious of givenness. Categories, in other words, create nature, so far as the matter is a cosmos, instead of a chaos. The cosmos is systematized in science. Categories are brought to consciousness by a very limited amount of acquaintance with givenness. The systematization of nature by means of a

category thus becomes a problem. Categories *are*, though they are not created. We know that they are by our own psychologic introspective experience. The category of substance is brought to consciousness in this immediate way by experiencing the permanence of the Ego during the change of the consecutive conscious states; the category of causality becomes conscious, whenever I feel that I move bodies in nature by the movement of parts of my body, which is a body in nature itself. It thus becomes evident to us that our minds are in possession of an apparatus which, though we become aware of it by experience, is nevertheless preceding experience. The categories of all human individuals do, however, not interpret givenness in the same way, and it is my conception that the inner psychic mechanism of man must correspond in a certain sense to the constellation of forms in givenness or in nature before an idea can be awakened. The word, idea, is the most celebrated one in philosophy, and in modern language is very much misinterpreted. From what I of have said just now, it is evident that no man can ever produce sor an idea by his own will. The production of an idea, or, let us cip say the "becoming aware" of an idea, is conditioned by a fitness thest of the inner constellation of categories in the mind with the en-and i/ironmental constellation of factors and forces impinging upon devo/ nan's psychic state. The inner must fit into the outer constella-from tion like a key into a lock. Now such a coordination of inner real and outer constellations is not under human control. It is the abstr factor X, and impresses me as an entelechian factor.

life *Categories and Entelechies: Ideal Nature and Organic Nature:*

tru All the elemental constituents that science operates with are the modeled and formed according to the category of relations. ph Then the categories of quantity, quality, space and time serve to w/ give definite character to each constituent. Eventually the general notions of actuality and possibility complete the picture. si Thus the constituents of nature which are known as mass, and y force, and perpetual energy are created. All of these instances as such occur in the sciences of the inorganic. Some philosophers have introduced the conception of the *ontological prototype*. All of the ideal inorganic nature corresponds to the totality of possible relations that may be established from the point of view of pure ontology (Kant) in combination with the

simple character, categories of quantity, quality, space, time, actuality, and possibility. Ontology is the doctrine of abstract being or existence, and it is Driesch's opinion that we can not understand nature except in so far as science is capable of coordinating ontological prototypes in our mind with natural givenness. In order to make these profound concepts clear, we have to understand the categories and, above all, that some of them allow us to create elemental constituents with regard to spatial nature, but not *in* spatial nature. Driesch asserts that entelechy is a constituent of external nature, but yet it is unimaginable. It is conceivable, but not imaginable. But the same can be said of factors with which physics deals: for example, force or potential energy, or a constant of any kind, although they are in space, are not imaginable, though they are conceivable. The force of gravity is not imaginable; but only conceivable. And therefore life can be better understood by the concept of an entelechy just as inorganic nature can be better understood by the concepts of energy, force, and mass.

ADDRESS DELIVERED AT THE ANNUAL MEETING, UNITED HOSPITAL FUND, APRIL 19, 1927

SAMUEL W. LAMBERT

It is a privilege to represent the medical profession of New York as the recently elected President of The New York Academy of Medicine. It is my opportunity, as one of the oldest professional workers in the hospitals of the city still on active service, to talk to the representatives of those hospitals who are assembled here to receive each his share of the United Hospital Fund of \$600,000 to be distributed for 1926-27.

During the forty-two years that I have been on hospital service, beginning as an interne in Bellevue in 1885, I have served as attending physician in five institutions (Vanderbilt Clinic, Nursery and Child's, Lying-In, New York, and St. Luke's Hospitals) and have been also a trustee of four of the member hospitals of this association. Let me state that my experience has demon-

strated that whatever differences of opinion may from time to time arise in the relations of the governing bodies of the hospitals and their medical and surgical staffs, there can never be any real divergence of interest between these two groups always active in hospital work.

In speaking for the Academy of Medicine I wish to emphasize the work of its Committee on Public Health Relations which has been going on for sixteen years. That committee formulated the beginnings of the work of two important bureaus which are intimately associated with the United Hospital Fund, the Committee on Dispensary Development, which has just finished a six-year period of independent study with valuable results in the field of out-patient clinics, and the Hospital Information and Service Bureau, which forms a part of the activities of the United Hospital Fund.

The trustees of this fund have several important duties to carry on. *First:* The raising of donations and their distribution to the associated hospitals on a basis of free service both in the wards and, beginning this year, in the out-patient service as well. May a hitherto outside observer like myself give a word of advice for the future that special care be taken in adopting rules for estimating free hospital days so that there will be no tendency to promote extravagance of administration. In no sense do I offer this as a criticism of the present administration of the fund. *Second:* Now that the program of the Dispensary Development Committee has been completed, it will be necessary for the United Hospital Fund to resume a more active interest in the out-patient services. *Third:* The Hospital Information and Service Bureau renders two important functions: it spreads among the associated hospitals a knowledge of hospital needs and progress and it carries on research in methods of management and economy in hospital work. This association is thus an educator of its own members. It is most interesting to note that during the past year 1,715 requests for hospital surveys and suggestions, many from outside of New York, have been made of this bureau.

There is another close link between the United Hospital Fund and the Academy of Medicine which is carried on at the Academy under the supervision of its Committee on Medical Education. This committee investigates every clinic and course of instruc-

tion offered by the physicians and surgeons of the metropolitan hospitals and keeps a bulletin board at the Academy on which every accepted and approved course is filed. Medical education is an inseparable and necessary part of hospital work. In its minimum development it consists of the education of the attending and interne staffs. At present the teaching of undergraduate students in the hospitals of the city is much reduced in amount because of the reduction of the numbers of students by the medical schools. But there is an increasing opportunity to offer to graduates special courses of instruction either under the wing of the universities and medical schools, or quite independent of such support, under the endorsement of the Academy of Medicine. It has always been my conviction that no hospital fulfils its complete function unless its professional staff are active teachers of medicine and surgery and its many specialties. All of these functions are of great importance as aids in the raising of money and in the bringing home to the lay public the need of hospital support from the philanthropic public. A proper emphasis of these activities, which are corollaries to the eleemosynary work of hospitals, will increase the size of the United Hospital Fund and make easier its collection.

It cannot be amiss to call to your attention the relation of the individual physician to his hospital work. He serves without pay and assumes before the law entire financial responsibility for his professional work. So far as any lawsuit for damages for alleged injury to patients or malpractice is concerned, the hospital is immune. The medical profession should not become subject to any general campaign for financial support of hospitals by individual donations. The medical profession will always be most useful to stimulate interest in hospital work and to secure financial support and donations even when they do not become donors themselves. There has come up for discussion in this connection the question of the payment of salaries to all hospital physicians. This is now done in many clinic positions and in some special hospitals as well, and is universal so far as laboratory and workers in medical sciences are concerned. It will be studied by the Academy of Medicine and the question must be met by the hospitals also. I confess that I am old-fashioned enough to be quite unconvinced at the present time of the advisability of the general adoption of such a plan.

The practice of medicine has become increasingly complicated and therefore expensive, not only to the private patient, but to the hospital patient as well. The extensive use of special diets in nephritis, anemia and diabetes, the use of costly medicinal agents such as transfusion and the routine with insulin, the increasing use of the x-ray and electrocardiograph, and of the chemical and bacteriological laboratories for diagnosis and treatment, have placed the physician in the position of being a chief cause of enlarged expense to all up-to-date hospitals. Although this is a legitimate expense it must be watched to avoid extravagance.

But, in conclusion, let me emphasize that the interests of hospital managers and hospital physicians are identical and that no antagonism can rightly exist between them.

ABSTRACTS OF PAPERS PRESENTED AT SECTION MEETINGS

Section of Ophthalmology, May 16, 1927

EXPERIMENTAL STUDIES OF TRACHOMA¹ (A Summary of a Study)

CHRONIC GRANULAR CONJUNCTIVITIS INDUCED IN *Macacus rhesus*
AND CHIMPANZEE BY INOCULATION OF CULTURES OF A
MICROORGANISM ISOLATED FROM CASES OF
AMERICAN INDIAN TRACHOMA

HIDEYO NOGUCHI

As a result of the study by bacterial cultures of material derived from five cases of trachoma occurring in pupils in the Albuquerque Indian School, Albuquerque, New Mexico, a microorganism has been isolated which induces in *Macacus rhesus* monkeys and in the chimpanzee a chronic granular conjunctivitis resembling that observed in the patients from whom the microorganism was obtained. The diagnosis in the cases studied was

¹ From the laboratories of the Rockefeller Institute for Medical Research.

made by Drs. Parlett and Richards, of the U. S. Indian Service, and in all instances scar tissue was present at the time of collection of the material. Re-examination by Dr. Richards one year after the material was collected showed that trachoma was still present.

Direct inoculation of the conjunctiva of *Macacus rhesus* with the trachomatous material failed to induce infection, the animals remaining normal during four months of observation. The material was injected subconjunctivally on the upper lid, and at the same time the tarsal conjunctiva was slightly scarified with the needle point of the charged syringe.

Various bacteriological procedures were employed, including several which in recent years have been used successfully in the isolation of highly parasitic organisms. Besides the effective microorganism, which was obtained from four of the five cases, four other kinds of bacteria were isolated from the material studied, including (1) *Staphylococcus albus* and (2) *Bacillus xerosis*, both of which were present in all five cases; (3) a minute Gram-negative, motile, mucin-producing chromogenous bacterium which grows well on ordinary culture media, and which was obtained in all but one case; and (4) a large, sarcina-like organism, sometimes Gram-positive, sometimes Gram-negative, which was isolated from four cases. The microorganism which proved to be active is a minute Gram-negative, apparently non-motile, pleomorphic bacilliform organism, which grows on a semi-solid medium containing fresh animal serum and hemoglobin but not on any of the ordinary culture media and only occasionally on blood agar.

Macacus rhesus monkeys were used for testing the pathogenicity of the cultures, the inoculations being made by subconjunctival injection and epithelial scarification. The staphylococcus, which was inoculated into three monkeys, gave rise to an acute purulent conjunctivitis which completely subsided in about ten days without producing chronic inflammation. The inoculation of *B. xerosis* into two monkeys produced no appreciable effect. The sarcinoids were inoculated into twenty monkeys and the motile bacillus into ten. The largest number of animals was used in the case of these two organisms, because they appeared at first to be more unusual and therefore more promising than the others.

Both induced a moderate mucopurulent conjunctivitis which lasted about a week, but no follicles developed during several months of observation. Somewhat later five monkeys were inoculated with a mixture of two strains of the Koch-Weeks bacillus; no conjunctivitis and no follicle formation developed. The results of all these tests indicated that none of these five organisms, all of which grow on ordinary culture media, is capable of inducing granular conjunctivitis in *Macacus rhesus*, and that the conjunctiva of this animal does not easily react with follicle formation.

The effects were wholly different after the inoculation of the non-motile bacillus which grew only on the special media. Twelve monkeys altogether have been inoculated with this organism, of which eight have developed a slowly-progressing chronic granular conjunctivitis resembling trachoma in the localization and character of the lesions. The effects became noticeable in two to four weeks after inoculation, and the lesions gradually extended over the tarsus. In the course of from two to five months the appearance of the inoculated conjunctiva approached more and more that of the human trachomatous conjunctiva in the early stages of the disease; follicle formation and tarsal thickening occurred. In one monkey (*M. rhesus* 84) scar formation in the tarsal conjunctiva became apparent seven months after the inoculation. In several monkeys (Nos. 79, 85, 127) the uninoculated eye soon became involved, owing to spontaneous transmission from the inoculated eye, while in one instance only (No. 84) the condition remained confined to the inoculated eye until experimentally transmitted to the other side.

In three monkeys inoculated with the same culture the lesions developed, remained for a short time, and then receded. In only one monkey was the inoculation entirely negative.

The lesions induced in the conjunctiva of *rhesus* monkeys by means of the cultures were directly transmitted to normal *rhesus* monkeys in several instances. In four of the monkeys to which direct transfer was made the lesions are still progressing, in two they have remained stationary, and in three they have receded. In three animals the direct inoculation of material from culture monkeys failed. The character and localization of the follicular lesions in the four passage monkeys were identical with those in the monkeys successfully inoculated with cultures.

From the upper eyelids of one of the passage monkeys transfer was made to two *rhesus* monkeys and two chimpanzees. One of the *rhesus* monkeys developed very mild lesions, the other escaped infection. One of the chimpanzees, however, developed within four weeks a chronic granular conjunctivitis which has steadily progressed. For four months the lesion was confined to the inoculated (left) eye, but at the end of that time the other eye also began to show the granular condition. The granules are grayish, succulent, and contiguous with one another, occupying the eul-de-sae, fornices, and nearly half of the tarsal conjunctiva. The conjunctiva of the lower lid is also studded with similar follicles. There is general papillary hyperplasia and a slight mucopurulent secretion. The other chimpanzee inoculated at the same time showed only a transient reaction.

A small portion of the lesion removed from the chimpanzee by grattage forty-nine days after inoculation gave rise to characteristic lesions in a *rhesus* monkey. The transmission of the disease from *rhesus* to chimpanzee and back to the *rhesus* monkey clearly shows the communicability of the condition.

The non-motile bacillus requiring special conditions for cultivation has been recovered from *rhesus* monkeys on two occasions and also from the chimpanzee. It is, however, difficult to isolate, since it does not grow on plate cultures, necessitating that the material used for inoculation must be relatively free from contaminating organisms.

The bacillus has occasionally been demonstrated in sections and films derived from human and monkey materials.

In microscopic characters the lesions produced in *Macacus rhesus* closely resemble those of human trachoma. The only striking difference arises from the fact that the conjunctiva of the monkeys possesses no adenoid layer between the epithelium and the tarsus and no papillae comparable with those in the human conjunctiva; hence in this species the papillary hyperplasia of the tarsus is absent. Nevertheless, wherever there occurs in the monkey eyelid sufficient loose subconjunctival tissue there arise typical lymphoid infiltration and follicle formation, as shown in the regions near the eul-de-sae or fornix. The epithelial and subepithelial layers of the monkey eyelid over the tarsus often show a marked infiltration, though it is not of the papillary type.

The characteristic appearances of the follicle—the darker-staining small lymphocytes in a laminated periphery and a lighter germinal center of large vesicular mononuclear cells, often capsulated—agree in human and monkey lesions. In both the follicles contain the so-called Leber's *körperchenzellen* or Villard's phagocytes, and mitosis of the germinal center is common.

In the *rhesus* monkey (No. 84) in which the scar tissue was present, the lymphoid infiltration and follicles had almost disappeared at the time of the animal's death from tuberculosis seven and one-half months after inoculation. The deformed tarsi were covered with thickened epithelium, and a degree of entropion existed.

The disease known as trachoma among the American Indians has all the characteristics of classical trachoma and leads to the same disastrous results. It is a chronic granular conjunctivitis which ends in deformity of the lids through sclerosis of the mucosa and tarsi and impairment of vision through pannus. Trachoma has been transmitted directly from man to chimpanzee and lower monkeys by previous investigators (Nicolle, Morax and others), but so far as can be ascertained from their publications pannus was not observed among these animals. No one has produced a similar result with pure bacteria. The culture obtained in the present investigation produces on inoculation in monkeys the essential clinical and pathological changes described in the direct transmission experiments. That failure followed the direct inoculation, and yet positive results were secured from the cultures, may be explained by the fact that the original material contained too few bacilli to break down the natural resistance of the conjunctival tissues, while the large numbers of bacilli in culture accomplished this effect. The similar instance of Oroya fever may be cited, in which a rich culture of *Bartonella bacilliformis* is capable of inducing infection of monkeys, whereas the original blood, from which the cultures were obtained, is unable to do so.

Section of Surgery, January 7, 1927

FRACTURES OF THE TRANSVERSE PROCESSES OF THE LUMBAR VERTEBRAE

ROBERT H. KENNEDY

There is apparently considerable difference of opinion in regard to the frequency, importance and method of treatment of fractures of the transverse processes of the lumbar vertebrae. From the scarcity of references in the literature one would think the lesion either rare or of little moment. Some even suggest that it is non-existent, the X-ray appearance being due to bony abnormality. A knowledge of the amount of disability caused is important for one thing in estimating insurance loss, as many of these are compensation cases. Some state that prolonged immobilization or more radical procedure is necessary, apparently feeling that they are dealing with an injury followed by considerable disability. This paper reviews the literature and our experience in ten cases at the Surgical Clinic of the Beekman Street Hospital.

Among injuries to the back, fractures of the transverse processes of the lumbar vertebrae are not rare, although it is to be emphasized that bony anomalies in this region are frequent, and may tend to confuse the diagnosis. The most common cause of fracture of the transverse processes is direct violence. The symptoms and physical signs are those of a severe sprain or contusion of the back. Such fractures are usually multiple. When uncomplicated by body fracture, all the fractures are usually on the same side.

The disability caused by the injury is due solely to the associated contusion or sprain of the back, and the presence of the fracture is negligible as far as prolongation of disability is concerned. Owing to the frequency of traumatic neurosis, it is preferable that knowledge of an existing fracture be kept from the patient. Bony union of the fractured transverse processes is definite in some of these cases. More careful examination of backs should be made before employing men over forty at hard labor.

The treatment required is rest in bed, heat and massage. Prolonged immobilization is no more necessary than in any contusion or sprain of the back. In this series patients were able to walk after an average period of sixteen days. Disability over six months is out of the ordinary. The majority should be at work within two months with practically no complaints referable to the injury.

Section of Surgery, January 7, 1927

METABOLISM IN BURNS*

(Surgical Phases)

JOHN J. MOORHEAD

JOHN A. KILLIAN, Ph.D.

If we regard a burn as a wound due to thermal, chemical or electrical trauma we immediately place such lesions in a group of well-understood traumapathies. If, further, we recognize that burns are potentially infected wounds from the outset, we again align this group with other well-understood lesions of the superficial and deep tissues.

It is not the purpose here and now to detail the diverse etiology, symptomatology or therapy of burns, but rather to revert to some of the by-products of burns in an attempt to show that the local and systemic manifestations partake of the metabolic reactions common to infections in general, particularly to wound infections. From a clinical standpoint, it is a common observation that burns of like origin, of like local effect, are widely diverse in their systemic effects upon persons alike as to sex, age, race, occupation and station in life.

We have long recognized, for example, that shock from a burn may appear early, it may be delayed for from 3 to 7 days, or it may appear as late as the 14th day. Children, in particular, are prone to manifest these early, intermediate or late shock phenomena, and the causation has usually been ascribed to psychic

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trauma, to infection, or to the absorption of burnt tissue. And these manifestations are by no means limited to extensive burns, deep or otherwise. Burns by electricity are supposed to be less painful, heal more rapidly, and in general offer a most favorable prognosis. Our observation scarcely confirms this, and we have rarely seen an electrical burn in the absolute sense, most of them being in reality heat burns or flame burns, as from ignited clothing or singeing of the hair.

In some crushing wounds, as from run-over accidents, there is a retarded or late shock definitely assignable to absorption of devitalized tissue. This is in effect a protein reaction, anaphylactic shock.

We have tried in this series of cases to show the nature of this reaction in terms of blood chemistry in the hope that we could thereby suitably alter the circulating blood, thus preventing or minimizing this form of shock. We have also attempted to determine the bases for speedy repair, aiming to provide the system with means to combat infection in the belief that wound sterilization is in the last analysis best attained by auto-débridement accomplished through the medium of the circulating blood rather than through the agency of antiseptics however highly these are vaunted. It is especially needful at this time to cling to the clinical fact of the ages in regard to the inefficacy and inevitable insufficiency of antiseptics in the treatment of any form of infected wound. It has been abundantly proved that antiseptics act only by virtue of mechanical cleansing, by virtue of dissolving amenable slough, by staining and thus fixing the organisms, and by a process of local germ killing that must be limited if the tissues themselves are not also to be killed. We know that we can only sprinkle the surface by any antiseptic and yet year by year some new sprinkling agency is exploited to beguile or befog us. At this moment we are in the Bolshevik stage of antiseptics, the profession is seeing red, and we are urged to become surgical flappers and daub wound rouge on every break in the skin. Worse than that, we are importuned to use this rouge intravenously, although we learned a score of years ago to avoid mercury in wound treatment when bichloride and its allies were the then certain means of attaining wound salvation. It would be interesting to write an article with the title "Antiseptics I

have known," but the difficulty would be to keep up with the necessary additions, corrections and deletions.

If there is no antiseptic of proven value in the treatment of wounds in general, it must be equally true for burns. And this is indeed the fact, for there is no final agreement as to the best procedure for the management of burns.

The laboratory will eventually solve this infected wound problem for us by showing us how to alter the circulating fluids in such a manner that organisms of a particular type cannot grow in a given habitat. In horticulture this soil reaction is a matter of relatively easy determination, so that forestry, for example, is governed by the chemistry of the soil as well as by climate, altitude and proximity of rocks or flowing streams. The organisms that defoliate a forest have in many instances been checked not by spraying the trees with chemicals or poison gas, but by altering the nitrogenous content of the soil.

There is in this study an attempt to ascertain the nature of the soil to the end that by changing the habitat certain undesirables may be forced to migrate because their provender has been discontinued, or it has actually been rendered toxic to the uninvited guests, who, vandal-like, are seeking to loot territory temporarily depleted of guardian forces.

Up to this time our own method of managing burns has been to regard them as infected wounds passing through three phases of evolution.

The first phase is that of local inflammation, virtually a dermatitis characterized by redness, pain and swelling. Here our plan is to apply a wet dressing of sodium bicarbonate (5 to 10 per cent.) keeping the dressings moist by a fenestrated tube suitably arranged to sprinkle the entire area. We do not disturb this for the two- to four-day period of this phase, systemic pain being controlled by morphine, the shock being suitably combated by rectal drip or otherwise.

The second phase is that of exudation, and this we seek to control by exposure of the entire surface to the open air, to sunlight or to the rays from 50 watt bulbs. We protect the discharging surface by a cradle or wire mesh. At night, or if crusts form, we cover the area with a gauze dressing soaked in equal parts of sterile olive oil and camphorated oil. We know

that this exposure method best provides unimpeded drainage and effectively prevents absorption and thus lessens fever and other systemic manifestations.

The third phase, that of cicatrization, also responds to this same exposure method, and in addition we occasionally add a wound fertilizer in the form of scarlet red ointment, one dram, to sterile olive oil, one ounce.

At all times we seek zealously to prevent contracture by keeping in advance of it, and thus posture and planned gymnastics are as much a part of therapy as the dressings or external applications. This form of pre-physiotherapy is just as applicable in burns as are early massage and mobilization in a joint fracture. For example, in wounds of the face and scalp we insist that the patient grimace frequently, blow out the cheeks and chew gum in an attempt to prevent deformation so common in this area.

We reserve débridement for that group, as in other wounds, in which there is localized destruction, not attempting it unless the local and systemic conditions warrant. If used indiscriminately it may be a source of real danger, or it becomes more mutilative than curative. The greatest sphere of usefulness for débridement is that form of burn associated with localized wet or dry gangrene manifested by demarcated sloughing, or parchment-like attempted repair. There is also a small group of burns in which early débridement and immediate plastic repair may be attempted to prevent inevitable contractures leading to later plastics.

We have had no personal experience with chemical débridement, as by tannic acid, carbolic or zinc. Of these, the tannic acid procedure seems to have the greatest merit.

We know of no method to prevent keloidal formation, but our observation is that it is less prevalent since the adoption of the exposure method. It is our practice not to interfere surgically early in keloids because many of them spontaneously recede, and others are softened by X-ray therapy.

For burns of minor degree there is no real objection to occlusive dressings of the paraffin type; but obviously a retentive covering has no more place in a discharging burn than it has in a discharging wound from any other source.

But after all, we are only accomplishing a very small part when we thus treat our infected wounds, burns or otherwise. Our aim should be so to alter the circulating fluids that these inherently would be reparative as well as antiseptic. It is therefore interesting to know what blood chemistry shows in burns, and with that in view my collaborator will give you in detail the results of his study of a small number of cases, 15 in all. This material has been obtained from Bellevue, Gouverneur, St. Vincent's and the Post-Graduate Hospital, and we wish to acknowledge our thanks to the surgeons who have contributed to this investigation. In passing, it is pertinent to say that much time and effort are required of the laboratory staff to amass even what may appear to be so meager a group of facts. We may also say that a similar line of investigation has been carried out in a group of fractures to determine whether or not the calcium and phosphorous content of the blood offered prognostic criteria. Our theory was that a fracture, virtually a wound of bone, might show alterations akin to the findings in soft part wounds. Thus far we have not been able to show any substantial changes, and we do not believe that calcium and phosphorous alterations are anything more than chance findings or normal variants in bone healing. We are convinced that non-union in fractures is not dependent upon demonstrable deficiency either in calcium or phosphorus. The obvious corollary is that these elements play no essential part in wound healing, and if this be true, then the CO_2 content may be the greater factor. In this connection it is interesting and suggestive to know that Dr. Thomas Buchanan, in charge of our Post-Graduate anesthesia department, has shown that he can alter the clotting time of the blood during an operation by changing the amount of CO_2 in the anesthetic. He believes that the amount of oozing is also controllable through the inhalant, and in this respect at least we all can record the clinical observation that certain anesthetics apparently produce oozing more than others.

Now all of this, meager and somewhat vague as yet in respect to wound repair, brings us a step nearer in our attempted control of infection. We have all seen in sepsis the occasional almost miraculous effect of injections of milk, or typhoid or diphtheria serum, and we regard their effects as a form of protein reaction.

Recently we deliberately planted pyocyaneus in a bed of streptococcus and the green weed grew abundantly and smothered the coccus, and while the patient recovered with a stiff elbow, yet the arm was saved.

It is an old trick in farming to rotate crops, to plant buckwheat when the soil is almost exhausted, to revitalize by a definite and radical chemical change in the soil itself.

My belief is that something of this same sort is taking place in our present conception of infected wounds, burns and others. We are getting away from the spraying, the irrigating, the fertilizing, and are in effect reaching back to the soil, knowing that if we can alter it at will, we can determine at will the products thereof.

I do not believe infection will be abolished by the discovery of any polyvalent antiseptic, any universal sterilizant; but on the contrary, our problem will be solved by discovering a means to alter the circulating blood in such a way as to render the tissues competent to repel organisms by changing the chemistry of the blood and of the tissues themselves. This may be by a diet rich in some new element—a vitamin X—for example. But it will not be by the use of any germ killer in the form of a spray, irrigation or fertilizer; nor will it be by the use of artificial light such as a conservatory or hot-house might employ; nor will it be by any electrical device designed to alter or foster superficial growth. It will be all these things in one, for it will be an agent capable of reaching every invaded cell through the medium of the cell's own circulation.

METABOLISM IN CASES WITH CUTANEOUS BURNS

(Laboratory Phases)

JOHN J. MOORHEAD

JOHN A. KILLIAN, Ph.D.

This investigation into significant chemical changes in the blood and urine in cases of cutaneous burns was begun in March, 1925. Since that time reports have appeared in the literature related to similar phases of the problem. Hence some of the facts we have

necessary for the interpretation not only of our results, but also of the data of others.

Our object in the study of the metabolism of burns was two-fold. (a) The majority of the subjects, particularly of industrial burns, are healthy individuals, and the study of their metabolism after burns enables us to get information concerning the effects of an extensive destruction of body tissue, the extent of which can easily be estimated. Such information of the changes due to tissue destruction and repair is essential for the interpretation of the results of blood and urine analyses in infections associated with protein catabolism, *e.g.*, wound infections, pneumonias, etc. (b) Toxemia and blood concentration are among the theories proposed to explain the cause of death in superficial burns. If cutaneous burns are accompanied by a toxemia, we may get in the analyses of the blood and urine some information concerning the nature of the toxemia. Such data can be utilized practically to prevent the development of the toxemia by proper modification of the diet, or by the use of indicated therapeutic agents.

Since Wertheim in 1868 believed death after cutaneous burns to be due to a toxin circulating in the blood, various investigators found what they thought was a toxic substance in the urine of burn patients. The compound has been variously described as muscarine, pyridine and a ptomaine. Robertson and Boyd (1923), from experimental studies on rabbits, concluded that death occurring within the first twenty-four hours was due to primary shock, and later than this to a toxic shock. According to these authors there is a toxin produced in the burned tissue, in larger quantities in skin burns, which circulates free in the blood, or is absorbed by the erythrocytes, and this toxin produces the toxic symptoms seen in burn cases, rise in blood pressure and temperature, or in some cases, death. Whole citrated blood from burn cases is toxic, but blood serum is not. Solutions of the erythrocytes are more toxic than the whole blood. Robertson and Boyd believe that the toxin consists of two parts, (a) a thermostabile, diffusible and neurotoxic substance and (b) a thermolabile, colloidal and necrotoxic substance. The toxic substances are believed to be composed of primary and secondary proteoses.

Davidson states that the clinical picture of burn cases indicates that fatal results must be due to a toxemia caused by absorption of devitalized tissue. Precipitation of the devitalized tissue protein obviates the production of the toxemia.

Underhill and Paek have observed in 23 cases of severe burns a marked concentration of the blood, the extent of which is estimated by determinations of the hemoglobin. Similar changes have been reported by Underhill in influenza and lethal war-gas poisoning. When the hemoglobin is increased to 125 per cent. of the normal, conditions for the maintenance of life become precarious. Man and animals cannot long withstand an increase of 140 per cent. These authors have also noted a decrease in the blood chlorides, and these changes they believe are due to transudation of plasma in the edema formation. Davidson has also noted a decrease in the blood and urine chlorides, but was unable to account for this decrease in a concentration of the blood.

In these preliminary studies our analyses of the blood and urine have been extensive in order to get a comprehensive view of metabolic changes in cases of cutaneous burns. According to Williams' figures for the normal hemoglobin of the blood of adults (15.0 to 16.6 per cent.), in but 4 of the 15 cases have we found an increase in hemoglobin. In these 4 instances, the hemoglobin figures were 17.0, 17.0, 18.2 and 19.7 per cent. The maximum increase was 115 per cent. of the normal. However, these bloods showed no other evidence of concentration, since the total solids were not increased above the normal.

A high non-protein nitrogen of the blood was found in all but four patients. This increase in non-protein nitrogen occurred in the first specimens obtained after the burn. In three patients dying within two to ten days after the burn, high figures in urea nitrogen were also seen. This increase in blood nitrogen was not due to renal impairment. The total nitrogen of the urine was diminished during the first four or five days, but was followed by a compensatory rise. In a few instances unusually high figures for amino-acid nitrogen of the blood was observed, these figures corresponding in time with the maximum figures for non-protein nitrogen. In the changes in the icterus index of the blood and in urobilin output in the urine, we have evidence of an impairment of liver function. There was also seen an in-

crease in the ratio of ammonia nitrogen to total nitrogen, due, we believe, to a ketosis.

A marked decrease in chloride excretion in urine was noted in all cases, accompanied in most instances by a decrease in blood chlorides. The changes in blood chlorides, however, were insignificant compared to analogous changes in the urine. Following the period of chloride retention there was an increased output of chlorides in the urine. The variations in chloride concentration in the blood, or of chloride excretion in the urine, bore no relation to the observed concentration of the blood, moreover it could not be attributed to edema formation, vomiting or any demonstrable gastro-intestinal pathology.

Section of Neurology and Psychiatry, January 11, 1927

THE SENSORY FIELD OF THE FACIAL NERVE INTRA-ORAL REPRESENTATION

S. L. RUSKIN

The interesting cases contained in this report are offered as further clinical support of J. Ramsay Hunt's work in the sensory field of the facial nerve. The geniculate ganglion lying upon the knee of the facial nerve contains unipolar cells the axones of which divide T-shaped into two processes: one passing centrally through the nervus intermedius of Wrisberg to the medulla, the other passing peripherally as chorda tympani and greater superficial petrosal nerves, the latter forming an important root for the nasal ganglion. In my contributions to the study of the sphenopalatine ganglion I have demonstrated the importance of the greater superficial petrosal nerve in the causation of headache and neuralgia of the back half of the head and neck. This paper presents part of my study of the distribution of the sensory fibers of the facial nerve. Hunt, in his studies, has tried to trace the sensory elements of the facial nerve through a study of herpes zoster manifestations from the geniculate, the sensory ganglion of the facial. Such a method is necessarily in-

complete because herpes is only one manifestation of nerve disturbance and the clinical material is extremely limited. I recognized that the greater superficial petrosal which represents a sensory root from the facial to the nasal ganglion is responsible for a large part of the so-called Sluder syndrome. By cocaineizing the nasal ganglion I can, to a large extent, anesthetize the sensory system of the facial and control the pain in herpes zoster oticus. I find this, therefore, a valuable method for the study of the sensory distribution of the facial nerve. In this paper I am tracing only the intra-oral distribution.

The first case reported is that of Mrs. A., age 56, who came to my office complaining of difficulty in hearing on the right side, tinnitus and vertigo. Her complaint dates back two and a half years ago when she began suffering from a burning sensation at the tip of the tongue on the right side and a bitter taste along the side of the mouth. This was associated with a feeling of fullness and scratchiness in the throat and itching of the roof of the mouth and the right side of the face. She also complained of pain in the back of the head radiating to the right shoulder. Her right eye felt as though it were set in a frame with a burning sensation around it. At this time she complained of a deficient sense of taste on the right side. The right side of the face and lips felt somewhat numb.

Examination revealed the following findings: Slight ptosis of right eyelid, diminished corneal reflex. Nasal examination showed a mild atrophic rhinitis. Aural examination showed a spontaneous vestibular nystagmus with the rapid component to the side of the lesion, spontaneous pass-pointing to the right, slight tendency to fall but not distinctly to either side. Functional testing showed a complete loss of vestibular and cochlear function.

The burning at the tip of the tongue and the taste disturbance along the side of the tongue indicate involvement of the sensory root of the facial nerve. This, together with loss of function of the auditory nerve, suggested the diagnosis of a cerebello-pontine angle tumor, which was confirmed at operation.

The second case is one showing the intra-oral distribution of the facial following an acute facial neuritis with paralysis and incomplete recovery. It is the case of Mrs. M., who complained

for the last three months of a very sweet taste in the mouth on the same side as the paralysis. This was associated with burning and sticking pains at the tip of the tongue and noises in the ear of the same side. The taste disturbance was so great as to overshadow her other complaints. She suffered from severe attacks of vertigo and right hemicrania, with pains extending into her neck and shoulder. In addition she had rhinorrhea and sneezing. Three years ago, following a severe attack of rhinorrhea, she developed a complete right facial paralysis which lasted for two years. Now it is present to a small extent. The sticky pains in the tongue she traced back to the onset of her paralysis. Examination revealed a chronic bilateral ethmoiditis and chronic tonsillitis. Anesthetization of the terminal endings of the greater superficial petrosal branch of the facial at the sphenopalatine (nasal) ganglion, immediately stopped the sweet taste in the mouth and burning of the tongue as well as the hemicrania and vertigo.

Here we have a case of inflammatory involvement of the facial nerve in both its sensory and motor portions, the sensory manifestations of which could be controlled at the nasal ganglion.

The third case demonstrates the same symptomatology. Taste disturbance in the mouth and pain at the tip of the tongue associated with profuse salivation and severe vertigo probably due to a peripheral lesion, catching the fibres of the greater superficial petrosal at the nasal ganglion, with some irritation reaching back to the communication with the VIIIth nerve and centrally to the nucleus salivatorius. The case is that of Mr. J., aged 63, who complained of a bitter taste along the left side of the mouth which began two years before as a salty taste on the left side of the mouth, changing in a few months to a bitter taste. He suffered also from a burning pain along the left side of the tongue, most severe at the tip. Since the onset he has had profuse salivation on the left side and severe attacks of dizziness every two or three weeks, necessitating his going to bed for from one to three days. The attacks of vertigo were frequently associated with nausea and vomiting. The character of the vertigo he described as rotary and at times it would be a sensation of falling away from the objects he saw. In cold weather he suffered from rhinorrhea and slight pain in the left maxillary region.

Nasal examination revealed a bilateral ethmoiditis, otherwise the findings were negative. The patient had had an ethmoidectomy on the left side one year prior to his coming to see me. During the two years of his complaint the patient had undergone almost every conceivable form of treatment with no results. Because of his age the vertigo was attributed to arteriosclerosis and his taste sensation to gastric disturbance. Anesthetizing the nasal ganglion gave him immediate relief. Following the alcohol injection by the route which I have published for the injection of the sphenopalatine ganglion, the patient was relieved of all but the profuse salivation.

SUMMARY

The first case demonstrates sensory disturbances in the mouth from involvement of the facial nerve by a cerebello-pontine angle tumor.

The second case illustrates the same disturbance in a case of facial neuritis with facial paralysis.

The third case shows the similar symptomatology through irritations of the greater superficial petrosal branch of the sensory portion of the facial nerve and originating in the sphenopalatine (nasal) ganglion.

In all of these cases the pain or burning at the tip of the tongue and the taste disturbance in the mouth could be blocked at the nasal ganglion, thus giving further clinical support to those physiologists who claim that the greater superficial petrosal branch of the facial nerve carries sensory and taste fibres.

Section of Pediatrics, January 13, 1927

EPIDEMIC MENINGITIS IN THE FIRST THREE MONTHS OF LIFE

JOSEPHINE B. NEAL

HENRY W. JACKSON

The literature on epidemic meningitis in infancy is meager.

In the very young the symptoms are so atypical that we believe the diagnosis is often not made at all, or not until late, which accounts for the high mortality.

We are limiting our study to those cases occurring during the first three months of life.

We have fifty-four cases with the following etiological distribution:

Age	Meningococcus	Pneumococcus	T. B.				
3 mos.	25	7	5				
		B. coli	Influenza	Mic. Cat.	Total		
		3	2	1	54		

The cases due to the meningococcus greatly predominate.

The outstanding symptoms in infancy are gastro-intestinal. Onset is fairly acute and the symptoms do not respond to ordinary treatment. Fever is irregular and child is irritable and hyperesthetic. The classical signs of meningitis are usually absent until late. Always look for a bulging fontanelle. We are usually called in consultation when the case is well advanced.

Our treatment is conservative. A lumbar puncture is done every 24 hours, as much spinal fluid is drawn off as possible and 20 cc. of antimeningitis serum administered intra-spinaly, if it runs in easily by gravity. We give serum intravenously only in septicemic cases and resort to ventricular or cisternal punctures only when there is a blockage.

In our group of 25 cases, two are not included in the mortality as treatment was refused. We had a mortality of 47.8 per cent. on the remaining 23 cases.

Our youngest patient to recover was first seen when 25 days old, and on the second puncture no fluid was obtained, but the serum ran in readily. This also happened on the 4th, 5th and

6th puncture. This is an instance where many would have resorted to ventricular or cisternal punctures and would have attributed the recovery to those methods of treatment.

Our sequelæ have been surprisingly few. Of the twelve recovered cases one could not be traced. Of the eleven followed up one is deaf and the other ten made complete recoveries.

Section of Pediatrics, January 13, 1927

ENCEPHALITIS ASSOCIATED WITH MEASLES

JOSEPHINE B. NEAL

EMANUEL APPLEBAUM

It has been recognized for a long time that the various acute infections as measles, scarlet fever, pneumonia, pertussis, etc., may be followed by encephalitis. While we have seen a few instances of encephalitis following various of the acute infectious diseases, by far the largest number, twelve, have been associated with measles. During the year 1926, particularly, we have seen a comparatively large number, eight.

The clinical picture is of a highly variable character. The onset of this condition was usually sudden and developed during or a few days after the attack of measles. Fever and headache were almost constant symptoms. Convulsions were present in about half the cases. The most striking of all the symptoms were changes in the mental condition, varying from a mild degree of irritability or apathy to profound stupor or delirium. Some form of paralysis was present in one third of our cases.

The physical signs were chiefly those due to varying degrees of meningeal irritation or increased intracranial pressure. Stiffness of the neck, Kernig sign, Brudzinski sign, bulging fontanelle or positive Macewen were noted in a fair proportion of cases. The condition of the reflexes was highly variable. While ocular symptoms were rare, they were rather striking when present. One case was apparently blind. Fixed dilation of pupils was present in two cases. There were also two instances of nystagmus and strabismus.

One or more lumbar punctures were performed in every case. The fluids usually came out under increased pressure and were clear in all but two instances, which were contaminated by a few red blood cells. Practically all the spinal fluids showed some evidence of abnormality. There was usually a slight or moderate increase in cells, most of which were mononuclears. In most instances there was also a slight or moderate increase in protein content. The sugar was uniformly normal or high. Smears and cultures were all negative for organisms.

It is obvious that all forms of encephalitis present more or less similar clinical pictures. The diagnosis of our cases of encephalitis associated with measles was based almost exclusively on the manifestations of encephalitis occurring during or shortly after an attack of measles. Indeed there was nothing in the clinical picture alone to rule out definitely epidemic encephalitis. It may be noted, however, that the onset was more sudden and with one exception the duration was much shorter than is usually the case in epidemic encephalitis.

Six cases are cited to illustrate the various types of this condition.

Of the twelve cases in the series three died, a mortality of 25 per cent. Seven of the nine recovered cases were followed up. All made a prompt and complete recovery with one exception. This patient, after an illness of more than eight months, has become a mental defective. He also has frequent *petit mal* seizures.

It is obviously impossible to make a definite statement as to the etiology and pathology of this condition. The subject certainly merits further study.

Section of Pediatrics, January 13, 1927

A STUDY OF TUBERCULIN-POSITIVE CHILDREN IN FOSTER HOMES

ARTHUR FORREST ANDERSON

The report comprises a study of tuberculin-positive children in a large foster home department. The 127 children followed, ranging from four months to seven years of age, belonged to the group of so-called latent or inactive tuberculosis.

These children were placed in individual homes in and about New York City, and were followed at frequent intervals by the workers. The results were extremely encouraging and pointed to the adaptability of the plan of home-care on a larger scale.

Section of Otology, January 14, 1927

THE PHILOSOPHY OF THE OLDER TESTS OF HEARING

ROBERT SONNENSCHNEIN, Chicago

The purpose of functional testing is to determine the presence and degree of impaired hearing, if any, and, secondly, to decide the location of the hearing defect. In the examination of the hearing functions the voice, acoumeter, watch, Koenig rods, tuning forks, resonators, whistles, monochord and audiometers are employed. Observation of the patient is an important factor with reference to the loudness of the voice, attitude of head, lip reading, etc. The otoscopic examination includes a careful inspection of the external ear, the tympanic membrane and mastoid region, the nasal, nasopharyngeal and pharyngeal regions. When testing with the voice by means of unaccentuated whisper or conversation, the patient's eyes are closed or averted and the opposite ear occluded. High and low tones and combinations of both should be used. After inflation of the ears, again test with the voice.

Tuning forks are used very largely to determine the upper and lower tone limits, as well as the carrying out the Schwabach, Weber, Rinne and other tests: The prongs of the fork move in transverse vibrations of great amplitude but slight intensity, while from the stem arise longitudinal vibrations of great intensity but small amplitude. Testing for the low limit begins with C-2 (16 d. v.) fork and proceeds upward. For high tones C-4 (1028 d. v.) and C-5 (4096 d. v.) forks are used. For still higher tones a modification of the Galton Whistle, such as the Edelmamm-Galton or Schaefer-Galton is used, or best of all the monochord, with which the highest tones may be tested both by air and bone conduction.

The Weber test for the determination of the lateralization of sound to one ear or the other is made by placing the fork in the median line of the vertex, forehead or the root of the nose. Normally the sound is best heard in the head, but is lateralized to the worse hearing ear with conduction apparatus impairment, and to the better hearing ear with inner ear involvement. There are, however, a good many exceptions to this rule.

The Schwabach test is used for determination of the duration of bone conduction in the individual as compared with a normal living or objective control. The fork is placed in the median line of the vertex or upon the mastoid. Slight diminution or slight increase is of no significance. As a rule there is a definite lengthening of bone conduction with involvement of the middle ear apparatus, and a decided shortening thereof with impairment of the inner ear. The Rinne test used for comparison of air with bone conduction in the same individual is in many ways the most valuable of the tuning fork tests. The stem of the fork is placed on the mastoid and when no longer heard a prong is held close to the ear without touching the auricle or vibrissae, and the duration of hearing by air noted. Normally the Rinne is positive, that is to say, air conduction is much longer than bone conduction. In perception apparatus involvement the Rinne is also positive, but both air and bone conduction are shorter than in the normal. With involvement of the conduction apparatus, Rinne is usually negative, that is, bone conduction is longer than air conduction. There are about eight varieties of the Rinne test.

The Gelle test is used for determining the mobility of the foot plates of the stapes. Normally with compression of the air in the external auditory canal there is diminution of hearing if the fork is placed on the head, tubing or bulb connected with the external auditory canal. If there is a decided fixation of stapes no change in hearing occurs.

The Stenger test is used for unmasking simulation of total unilateral deafness. Two forks are simultaneously employed, the patient believing only one is used. Move one fork somewhat closer to one ear with the other fork vibrating at the opposite ear so that the sound of the nearer fork drowns out the sound entering the opposite ear.

Weber, Schwabach and Rinne are the most important tests and should be used in every case. The Gelle and Stenger tests are for special purposes, and if desired one may employ several other tests, such as the Politzer for determining patency of the eustachian tube, the Bing test for determining the change in bone conduction, and the Lucæ-Dennert test for noting the difference of hearing between open and closed meatus.

Audiometers are used for quantitative and for obtaining audiograms which give a graphic record, showing loss of hearing in sensation units. Where forks are supplied with "constant" of damping or deceleration, similar curves are had, but if many pitches are tested the process is more tedious than with the audiometer; but on the other hand, the forks are less expensive and the instrumentarian more easily transportable.

Section of Ophthalmology, January 17, 1927

THREE CASES OF PROGRESSIVE AMAUROSIS OF RETROBULBAR ORIGIN—RECOVERY OF VISION WITH FOREIGN PROTEIN TREATMENT

JULIUS WOLFF

These cases were examined and treated in conjunction with Dr. Joseph H. Globus, of the Neurological Staff of Mount Sinai Hospital.

They presented great difficulty in diagnosis to expert ophthalmological and neurological consultants, one case having been operated upon for suspected brain tumor, and in another an operation for supposed pituitary tumor had been decided upon before the treatment with foreign protein was resorted to. In the latter case an intercurrent febrile condition just before the expected operation brought on the first signs of improvement in vision which had been growing worse steadily for months. This fact suggested postponement of the operation and the use of foreign protein. At least two of the three cases were diagnosed as post-encephalitic complications.

The paper was summarized as follows. The points that these cases have in common are:

(1) Progressive loss of vision, first in the one eye, then in the other, without intraocular changes, even at the height of the development of the clinical manifestation.

(2) The development of gradually enlarging central scotoma.

(3) The development of hemianopsia fields, even though only relative in degree, and requiring careful perimetric examination for their detection.

(4) Diagnostic difficulties presented, even to expert ophthalmological and neurological consultants.

(5) The lack of response to the usual forms of treatment of retrobulbar lesions of the optic nerve.

(6) Absence of a toxic etiology.

(7) The prompt and progressively favorable response to the intravenous injection of typhoid vaccine.

While these three cases, especially in the absence of pathological evidence, are far from sufficient in number to draw definite conclusions therefrom, they have nevertheless points enough in common to suggest a clinical entity which might be designated a "Chiasmal Perineuritis" that may exist alone or in combination with other neurological manifestations.

Section of Medicine, January 18, 1927

PHOSPHATURIA

GEORGE BAEHR

The secretion of an alkaline urine, turbid because of precipitated alkaline phosphates, has frequently been observed to occur in neurotic individuals and in some patients troubled with gastric hyperchlorhydria. The symptoms of great bladder irritability may be out of all proportion to the gastric complaints, so that the latter frequently escape observation or are not even mentioned by the patient.

In spite of the fact that the bladder urine is milky in appearance because of the large amounts of calcium, magnesium and

other alkaline phosphates, the condition is not dependent upon any disturbance in phosphorus metabolism nor is there actually any increase in phosphate excretion. Neither is there any demonstrable increase in absorption or elimination of calcium or magnesium. In fact, an experimentally increased supply of phosphates, of calcium and of magnesium does not produce phosphaturia.

A study of four patients who suffered from intense and persistent phosphaturia has supplied us with additional evidence that the condition is primarily the result of a disturbance in the acid-base regulating mechanism of the body induced by an excessive loss of hydrochloric acid in the gastric juice. Normally there occurs a diminution in the acidity of the urine at certain times of the day, coincidental with the secretion of acid into the stomach after meals. This post-prandial alkaline tide in the urine was found to be greatly exaggerated in all cases of phosphaturia.

During the period of digestion there is a temporary loss of acid into the stomach, and in order to maintain its approximate neutrality the body must therefore compensate by excreting less acid in the urine (and less CO_2 in the alveolar air). In our cases of phosphaturia the persistent hypersecretion of acid into the stomach actually resulted in compensatory secretion of an alkaline urine. The phosphates, which normally occur in the urine as acid salts, were excreted under these conditions as alkaline salts in combination with sodium, potassium, calcium and magnesium, all of which, especially the latter two, being of relatively low solubility. If the urine had become frankly alkaline after a meal and insoluble alkaline phosphates had been precipitated, the subsequently reabsorbed acid was usually inadequate to redissolve them in the bladder.

The observations on our cases also confirmed the contention of Hubbard that the urinary alkaline tide is increased by foods which stimulate gastric secretion. The ingestion of such foods definitely increased the phosphaturia and the bladder irritation.

However, in our experience the ingestion of foods with a predominately alkaline ash (vegetables, potatoes and most fruits) plays a still bigger rôle in exaggerating and in prolonging the urinary alkaline tide. Even in normal subjects with normal gas-

tric secretion, the consumption of a diet consisting wholly of such vegetable matter resulted in the secretion of urine with a hydrogen-ion concentration of 7.8 to 8.0, and a true phosphaturia. In patients with clinical phosphaturia, the already exaggerated alkaline tide was still further increased and prolonged by the excretion of alkaline salts derived from these base-forming foods.

The therapy which best controlled the phosphaturia was primarily planned to reduce the urinary alkaline tide and keep the urine constantly acid. To accomplish this, it was necessary to control the three chief factors responsible for the disturbance in acid-base equilibrium—namely: (1) to eliminate foods which stimulate gastric secretion; (2) to reduce psychic factors by means of atropine and sedatives, and (3) to omit base-forming foods from the diet. Acids were also administered by mouth but this was not found to be nearly as valuable as the elimination of the base-forming foods.

In one patient during a period of great economic stress, even our acid diet did not control the condition completely during the post-prandial periods, and it became necessary to find some means of completely eliminating the urinary alkaline tide. This we succeeded in accomplishing by means of a Sippy diet. Both in a normal subject as well as in the patient with stubborn phosphaturia, all traces of an alkaline tide disappeared after 24 to 36 hours on a Sippy diet, the urine showing a hydrogen-ion concentration of remarkable constancy throughout the day. Apparently the Sippy diet results in a uniform secretion of gastric juice at a constantly low rate—which probably accounts for its value not only in phosphaturia but also in gastric and duodenal ulcer.

Section of Medicine, January 18, 1927

STUDIES OF EXOPHTHALMIC GOITER AND THE INVOLUNTARY NERVOUS SYSTEM

Summary of

XII. THE COURSE OF THE SUBJECTIVE AND OBJECTIVE MANIFESTATIONS OF EXOPHTHALMIC GOITER IN FIFTY UNSELECTED PATIENTS. OBSERVATIONS FOR FIVE YEARS WITHOUT INSTITUTION OF "SPECIFIC" THERAPEUTIC MEASURES ("SPONTANEOUS COURSE")

LEO KESSEL

HAROLD THOMAS HYMAN

The course of the subjective and objective manifestations of Exophthalmic Goiter has been studied in fifty unselected patients. No specific therapeutic measures have been instituted, and the patients have remained under observation for five years.

Seven patients have died, two of cardiac failure, two of thyrotoxicosis, one following a thyroidectomy done at another institution, and one each of infection and status lymphaticus.

Ten patients were not satisfied with their progress and sought specific therapy. One of these received endocrine products and another radium therapy. The latter did brilliantly. The remaining eight patients had subtotal thyroidectomy, and four of these patients did well, and in four the result was indeterminate.

Three more patients were lost from observation.

Nineteen, or 38 per cent., of the fifty original patients are regarded as failures, and include all the above classifications, the difference in figures being due to the fact that one man is included in two groups.

Of the remaining thirty-one patients, all have been followed to date, and are still under observation. They still retain many of their subjective symptoms, but in no instance are these sufficient to incapacitate them. The exophthalmos is unchanged, and they still have a pulse lability and occasionally a tremor. The B. M. R., which on admission was plus 43 per cent., fell to plus 22 per

cent. at the sixth month and plus 17 per cent. at the twelfth month, and remains practically unchanged for the succeeding years. These patients gained an average of eighteen pounds in the first year, and this was maintained, with a slight loss, throughout the succeeding years. Hospitalization averaged six weeks, and rest in the country five weeks. Over half of the patients were socially and economically restored by the third month, and by the sixth month all but three were restored, and have remained economically and socially restored for an average period of fifty-two months to date, despite the stress and strain of trying conditions among the poor in a metropolitan district.

The purpose of this report is the establishment of a norm or control, and it is not presented for the purpose of outlining a therapeutic policy.

Section of Orthopedic Surgery, January 21, 1927

THE ETIOLOGY OF CAVUS AND A NEW OPERATION FOR ITS CORRECTION

J. TORRANCE RUGH, Philadelphia

There are four types of cavus or hollow-foot—mild, moderate, severe and “claw-foot,” but they are merely degrees of the same condition. The pathology has always been obscure but has been looked upon as a secondary rather than primary one. The etiology has generally been looked upon as—1, secondary to infantile paralysis; 2, due to gout, rheumatism or similar metabolic disturbances; 3, muscle imbalance, whether from paralysis of central or of peripheral origin; 4, the effects of gravity on paralyzed parts; 5, of congenital origin as in spina bifida, etc.; 6, bacterial or toxic irritation similar to Dupuytren’s contraction of palmar fascia plus trauma.

The mild cases show involvement of the plantar fascia alone. The moderate ones show fascial and skin shortening. The severe present skin, fascial and ligamentous contractions. “Claw-foot” shows changes in practically every structure of the foot, including bones and joints.

A careful study of the plantar fascia shows first that there are three very important parts—(a) the main body, (b) a branch which runs up the inner side of the foot to unite with the annular ligament and (c) a branch which runs directly into the foot and attaches to the astragalo-scaphoid ligament. Pathologic examination of the involved fascia in fifteen consecutive cases showed cellular infiltration and typical fibrositis. This results in tissue which always tends to contract and makes this structure the primary factor in the formation of the deformity, but its contraction is aided and abetted by the muscle weakness or paralysis on the dorsum of the foot.

The cause of the inflammatory changes lies probably in the toxemia of the paralytic infection. In over forty mild and moderate cases thus far operated upon the flexor brevis muscles were not found contracted, and correction was obtained by careful and thorough removal of the three portions of fascia.

Operations are unsatisfactory because the underlying cause of the contraction is not removed and the contracting fascia is permitted to remain in the foot.

The author's operative procedure is to dissect out the three portions of plantar fascia thoroughly and remove a flap of fat from the side of the thigh or leg and place it in the denuded area so as to interrupt the vicious line of contraction. Fat does not contract. The wound is closed and the foot placed in a cast, avoiding tension on the skin of the foot-sole. Walking after two or three weeks, carefully fitted shoes of sufficient length, and daily stretching of the foot by the patient for six to nine months completes the cure. Tendon transplantation, tarsal arthrodesis, cuneiform osteotomy, etc., may be combined with the fasciectomy in the severe cases, if necessary.

The fundamentals of the procedure are *first*, the pathologic findings in the plantar fascia which cause it to contract and, *second*, the interruption of the contracting tendency by interposition of fat which does not contract.

Section of Obstetrics and Gynecology, January 25, 1927

A COMBINED CYSTOCELE RETROVERSION PESSARY*

HERMAN F. STRONGIN

A brief review of the anatomical and mechanical factors involved in the production of retroversion and cystocele serves to clarify the mechanical corrective features of the pessary in question.

The anatomical structures of the female pelvis, upon which retention of the normal uterus depends, may be divided briefly into:

1. Suspensory (Ligamentous).
2. Supportive (Muscular).

The muscular structures are primary in importance in considering the mechanical correction brought about by the pessary in question.

Muscles of $\left\{ \begin{array}{l} \text{1st line of defense (Levator Ani and Fascial covers).} \\ \text{2nd line of defense (Urogenital Trigone).} \end{array} \right.$

We are concerned particularly with the Levator Ani muscle fibres, which arise near the symphysis pubis; the pubo-rectal or pubo-coccygeal fibers. These fibers on either side form the margin of the Levator Ani which clasps the vagina and outlines the Genital Hiatus, through which pass the urethra and vagina. The anterior boundary of the Genital Hiatus is the Os Pubis.

The muscles of the Urogenital Trigone are accessory and less important in their supportive function.

Normally the uterus is in an anteverted, anteflexed position with the intra-abdominal pressure exerted upon its posterior surface. Increased pressure causes a lowering of the internal genitalia which follow the normal *give* of the supportive muscle sling.

If retroversion has occurred as a result of the usual pathological causes and exists without pelvic muscle injury, then prolapse seldom occurs. In cases of retroversion with coexisting pelvic

* Reported from the Gynecological Division (Post-Partum Clinic), New York Lying-In Hospital.

muscle injury, in the nullipara with an inferior muscle constitution, or in women with senile muscle atrophy at or after the menopausal age, the uterus then no longer impeded in its downward advance by an obstructing ring of the pubo-rectal fibers of the Levator Ani, of its own weight, and the added force of the intra-abdominal pressure, is pushed through the Hiatus Genitalis. The descent of a retroverted uterus is accelerated because intra-abdominal pressure is exerted now upon its anterior surface and its shape is better accommodated by the ovoid Hiatus Genitalis, which the uterus now approaches at an angle that brings it into the plane of the vagina which from above courses downward and forward.

The bladder, which is in close connection with the uterus, is dragged down, becomes prolapsed and is recognized as a cystocele.

The problem of providing a maximum amount of comfort, yet using a simple device, for predominantly two classes of patients presenting themselves for treatment of cystocele and retroversion, at the post-partum clinic of the New York Lying-In Hospital, prompted the investigation which resulted in the production of the improved pessary.

The pessary is made in three sizes, of hard rubber; the intermediate one is the one most frequently adaptable.

The two groups of patients referred to that seek relief are the following:

1. The nursing mother who agrees to an operation but in whose case it seems advisable to wait until the child-bearing period is over, since operations are not always successful and subsequent muscle injury during childbirth is always imminent.

2. The woman who refuses operation.

The pessary when adjusted should lie horizontally in the vagina. When so placed the posterior curve of the pessary will be pushing up against the relaxed utero-sacral ligaments, the cervix will fit nicely into the cervical orifice and the cystocele will be pushed up out of sight, coming to rest as it does upon the supporting transversely-grooved convex hiatal bridge, in which perforations are provided for drainage. The transverse grooves offer resistance to the sliding vaginal mucous membrane.

The pessary in place, possesses in a way the corrective features of the uterus, as utilized in the subvesical interposition operation for cystocele, obstructing the Genital Hiatus from a point behind the pubis to a point just anterior to the cervix, and from side to side over an area of three fingers' breadth, bringing the lateral borders of the pessary well beyond the margins of that part of the Levator Ani muscles which encircle the Genital Hiatus. With the greater weight in front (bladder and part of the weight of the uterus), the pessary is propelled through an arc downward, backward and upward, thus increasing the supporting ability of that part of the pessary which is under the relaxed utero-sacral ligaments.

This action does four things, namely:

1. Pulls cervix back and upward.
2. Maintains the uterus in anteversion.
3. Tightens slack of prolapsed bladder.
4. Returns bladder to normal position.

The pessary that I have here described is not offered as an instrument for causal relief, but as an adjuvant for symptomatic amelioration of a pathological condition which in gynecological and obstetrical practice confronts us constantly and is meant for those patients who refuse operation, and for those in whom temporary or permanent contra-indications exist for operative correction of the cause. In these we must resort to the use of a pessary if we are to help the patient at all, and the pessary bringing about the maximum correction and restoration of physiological function, at the expense of a minimum amount of discomfort, will afford the greatest amount of relief.

The desiderata for such a pessary are:

1. Maximum mechanical correction and anatomical reposition.
2. Relief to the patient (Physical-Psychic).
3. Light weight.
4. Should not be visible.
5. Should not interfere with coitus.
6. Should not interfere with nozzle douche.

The pessary in question thoroughly fulfils all the requirements enumerated, except in cases where muscle injury has been extreme.

Section of Obstetrics and Gynecology, January 25, 1927

THE DISADVANTAGES OF THE PROLONGED PERIOD OF REST IN BED POST-PARTUM

H. J. EPSTEIN

A. J. FLEISCHER

A study of 446 uncomplicated spontaneous labors revealed the following facts:

Patients were allowed to sit up in bed within the first forty-eight to seventy-two hours, having been allowed to move about in bed within the first twenty-four hours. They were allowed to get out of bed within the first four days, one patient leaving the bed on the third day. The average day out of bed was the sixth day. There were twenty-seven cases of fever, nine of which had upper respiratory infections on admission, making a gross and net percentage morbidity of six and four, respectively. In only one case was temperature attributed to pelvic pathology, and that in a patient with a history of gonorrhœa.

Early rise favored the more rapid involution of the uterus and its ligaments. The use of the catheter, enemata and other therapeutic adjuvants was reduced to a minimum. To facilitate the act of urination and defecation, patients were allowed to sit up in bed on a commode, within the first forty-eight hours, or, if necessary, taken to the bathroom by a nurse after the first seventy-two hours. Venous stasis, with resultant thrombi and emboli, was prevented by early return to activity of the puerperal mother. The general muscular tonus, the blood-vascular and excretory systems were benefited by this early rise.

Early rise out of bed does not predispose to retroversion and prolapse as is claimed by some authors. On the contrary, hastening of the process of involution by early return to activity prevents retroversion and prolapse.

PROCEEDINGS OF ACADEMY MEETINGS, MAY, 1927

STATED MEETING

Thursday evening, May 5, at 8:30 o'clock

ORDER

- I. Executive session.
 - Election of Fellows.
 - Action on amendments to constitution and by-laws.
- II. Papers of the evening.
 - A Symposium on Tropical Diseases:
 - a. Certain conditions of the digestive tract in Porto Rico and their relation to sprue, Bailey K. Ashford, Porto Rico (by invitation).
 - b. Comment on tropical diseases of interest in New York City—a brief review, Claude H. Lavinder, U. S. Public Health Service.
 - c. The question of immunity and superinfection in yaws, Andrew W. Sellards, Boston (by invitation).

Thursday evening, May 19, at 8:30 o'clock

ORDER

- I. Executive session.
- II. Papers of the evening.
 - A Symposium on the Thyroid:
 - a. The relation of hyperthyroidism to benign tumors of the thyroid gland, William F. Rienhoff, Jr., Baltimore (by invitation).
 - b. The thyroid gland and its relation to disease, David Marine.
 - c. The use and abuse of iodine in the treatment of goitre and the intensive pre-operative iodine treatment of exophthalmic goitre, Emil Goetsch.
 - d. X-ray therapy in thyrotoxicosis, William H. Meyer (by invitation).

SECTION OF SURGERY

Friday evening, May 6, at 8:30 o'clock

ORDER

- I. Reading of the minutes.
- II. Presentation of cases.
 - a. Giant cell (?) tumor of the lower end of the radius.
Cured by roentgen therapy, Leon T. LeWald.
 - b. Major thoracoplasty for chronic empyema, 2 cases, John H. Garlock.
 - c. Colic intussusception, Edward D. Truesdell.
 - d. 1. Injury to the common bile duct with repair, 2 cases.
2. Congenital absence of the genital organs in a girl,
Thomas H. Russell.
 - e. Anti-colic Polya resection of the stomach with enter-
anastomosis, 3 cases, Charles L. Gibson.
 - f. 1. Perforated duodenal ulcer. Dehiscence of wound.
2. Perforated duodenal ulcer. Acute appendicitis 2½
years post-operative.
3. Perforated duodenal ulcer. Recurrence of symp-
toms within 3 months, J. William Hinton.
 - g. 1. Gastro-jejunal-colic fistula.
2. Perforated duodenal ulcer simulating common duct
stone, Edward C. Brenner.
- III. Papers of the evening.
 - a. Perforated duodenal ulcer, Edward C. Brenner.
 - b. Gastric secretion after subtotal gastrectomy, Eugene Klein.
- IV. Demonstration of specimens.
Ulcerated colitis, improved by caecostomy, Nelson W. Cornell.
- V. Demonstration of instruments.
Apparatus for direct blood transfusion developed by Dr.
Robert W. Thayer, Marius Greene.
- VI. Executive session.
Election of officers:
For Chairman, Morris K. Smith.
For Secretary, Edward D. Truesdell.

SECTION OF NEUROLOGY AND PSYCHIATRY

Tuesday evening, May 10, at 8:30 o'clock

ORDER

- I. Reading of the minutes.
- II. Presentation of cases.
 - a. Skull fracture with unusual clinico-pathological manifestations (pathological specimen), L. Beverley Chaney (by invitation).
- III. Papers of the evening.
 - a. Static innervation, Joseph Feser (by invitation).
 - b. Cerebral circulatory mechanisms. Vasomotor effects, Harold Wolff (by invitation).
- IV. Executive session.
 - Election of officers:
 - For Chairman, Walter M. Kraus.
 - For Secretary, Junius W. Stephenson.

SECTION OF PEDIATRICS

Thursday evening, May 12, at 8:00 o'clock

This meeting is a clinical one. It is desired that all patients be at the Academy of Medicine punctually at 8 P. M., for observation, in order that they may not be detained too late.

- I. Presentation of cases:
 - a. Babies' Hospital, 2 cases.
 - b. Bellevue Hospital, 1 case.
 - c. Mount Sinai Hospital, 2 cases.
 - d. Nursery and Child's Hospital, 2 cases.
 - e. Post-Graduate Hospital, 2 cases.
 - f. Presbyterian Hospital, 2 cases.
 - g. Saint Mary's Hospital, 2 cases.
 - h. Vanderbilt Clinic, 2 cases.
 - i. Willard Parker Hospital, 1 case.
 - j. Woman's Hospital, specimens.
- II. General discussion.
- III. Executive session.

Election of officers:

For Chairman, W. R. May.

For Secretary, Stafford McLean.

SECTION OF OTOTOLOGY

Friday evening, May 13, at 8:30 o'clock

ORDER

- I. Reading of the minutes.
- II. Presentation and report of cases.
 - a. Results obtained from the modified radical mastoidectomy in children and young adults, Hugh B. Blackwell.
 - b. Four cases of early cortical mastoid perforation, James W. Babcock.
 - c. Bilateral suppurative mastoiditis, sepsis simulating malnutrition, without middle ear or mastoid symptoms, Bernard Welt (by invitation).
 - d. 1. Congenital nystagmus in conjunction with double mastoidectomy and cerebellar symptoms.
2. Case of luetic basilar meningitis, with double facial nerve paralysis, Marvin F. Jones.
 - e. Additional case presentation and reports.
- III. General discussion.
- IV. Executive session.
Election of officers (nominees to be announced later).

SECTION OF OPHTHALMOLOGY

Monday evening, May 16, at 8:30 o'clock, sharp

ORDER

- I. Reading of the minutes.
- II. Papers of the evening.
 - a. Chronic granular conjunctivitis in *Macacus rhesus* and chimpanzee, induced by a microörganism isolated from cases of American Indian trachoma, Hideyo Noguchi (by invitation).

Discussion by Geo. E. deSchweinitz, Philadelphia, Wm. H. Wilmer, Baltimore (by invitation), F. H. Verhoeff, Boston (by invitation), F. I. Proctor, Boston (by invitation).

- b. Theory and technique of the squint operation, Henning Rönne, Copenhagen (by invitation).

Discussion.

III. Executive session.

Election of officers:

For Chairman, Bernard Samuels.

For Secretary, Thomas H. Johnson.

SECTION OF MEDICINE.

Tuesday evening, May 17, at 8:30 o'clock

ORDER

I. Papers of the evening.

From the Littauer Pneumonia Fund of New York University, the Medical Service of Harlem Hospital, and the Research Laboratory of the Department of Health.

- a. The leucocytes in pneumonia (supravital technique), Jesse G. M. Bullowa, Milton B. Rosenbluth, Anna K. Merkin (by invitation).
- b. *The leucocytes in pulmonary tuberculosis, Jesse G. M. Bullowa, Mary Dunning Rose (by invitation), Miss Judith Gideon (by invitation).
- c. The precipitin reaction of antipneumococcus sera and its relation to protective potency, Harry H. Sobotka, Miss Mae Friedlander (by invitation).
- d. Antibody and specific substance in the blood of treated and control cases of lobar pneumonia, William H. Park, Miss Georgia Cooper (by invitation).

* This study is from Riverside Hospital.

II. Executive session.

Election of officers:

For Chairman, Henry James.

For Secretary, Ralph H. Boots.

SECTION OF GENITO-URINARY SURGERY

Special Notice

There will be no scientific meeting of the Section in May.
 A special meeting will be called for the election of officers.
 For Chairman, Stanley R. Woodruff.
 For Secretary, John Sturdivant Read.

SECTION OF ORTHOPEDIC SURGERY

Friday evening, May 20, at 8:30 o'clock

ORDER

- I. Reading of the minutes.
- II. Presentation of cases.
 - a. Remarks on the physiology of bone in relation to tumor formation. Lantern slides, Eugene H. Eising.
 - b. Bone malignancy—distribution, age, incidence, x-ray findings, etc. Lantern slides, Henry W. Meyerding, Rochester (by invitation).
 - c. Bone sarcoma—prognosis based on a careful study of end-results following various methods of treatment, William B. Coley.

Discussion, Fred H. Albee, Ralph E. Herendeen (by invitation), Douglas Quick, Max A. Goldzieher (by invitation), Frank E. Adair.
- III. Executive session.

Election of officers:

For Chairman, Arthur Krida.

For Secretary, Elmer P. Weigel.

SECTION OF LARYNGOLOGY AND RHINOLOGY

Wednesday evening, May 25, at 8:30 o'clock

ORDER

- I. Reading of the minutes.
- II. Clinical meeting.

Presentation and report of cases.

III. Executive session.

Election of officers:

For Chairman, Arthur Nilsen.

For Secretary, Westley M. Hunt.

SECTION OF OBSTETRICS AND GYNECOLOGY

Tuesday evening, May 31, at 8:30 o'clock

ORDER

I. Case reports.

- a. Twin pregnancy following temporary suppression of the menses, Ira I. Kaplan.
- b. Three cases of hypo-ovarian function, treated by x-ray, I. Seth Hirsh.

II. Papers of the evening.

- a. The nasal application of pituitary extract for obstetrical purposes, J. Hofbauer, Johns Hopkins University (by invitation).
- b. Dry labor, true and false, Alfred L. Madden, Albany (by invitation).
- c. A new instrument for excision of diseased endocervix with surgical diathermy, Mortimer N. Hyams (by invitation).

III. Executive session.

Election of officers:

For Chairman, Hervey C. Williamson.

For Secretary, Thomas H. Cherry.

CONSTITUTION AND BY-LAWS

The amendments to the Constitution and By-Laws which were presented at the Stated Meeting held on March 17, and which were distributed to the Fellows, were approved at the Stated Meeting held on May 5. The following further amendments which were recommended by the Committee on By-Laws and approved by the Council will be printed and distributed to the Fellows about September 1, and will come up for action at the Stated Meeting which will be held on October 6, 1927.

Constitution.

Article II, Section 2—to be amended by inserting after the word “residing” the words “or having an office.”

Article VII to be amended by striking out the words “the Academy may be divided into as many Sections” and making it read: “Scientific Sections may be organized.”

By-Laws.

Article XII, Section 3, paragraph *f*.—Omit last clause reading: “With the names of his endorsers and the source of his diploma.” Note: This is already included in paragraph *c*, and it is unnecessary to have it, for the names of the endorsers and the source of diploma would then be printed twice. The name and address are sufficient when recommended for election.

Article XII, Section 4—Remove this Section from Article XII and insert as a new article to follow Article XIX and omit words “Honorary Fellowship,” from this section and number new Section XX. Section 2 of new Article XX to read: “Election to Honorary Fellowship shall be held at a Stated Meeting of the Academy and shall be by ballot on such candidates as have been recommended by the Council in accordance with Article IX, Section 4 of these By-Laws, and three-fourths of the Fellows present and voting,” etc.

CHANGES IN WORDING RECOMMENDED

Article X, Section 5—Insert at the end “or by two members of the Board of Trustees.”

Article XII, Section 5—Transfer word “make” from its present situation to follow the word “shall.”

Particular attention is called to

Article XI, Section 2—No loan or investment of the monies or trust funds of the Academy shall be made except in such investments as are legal for trust funds in the State of New York.

During the past year, the Trustees have given a great deal of time and attention to the question of the investments of the Academy. The Trustees authorized the appointment of a Finance Committee, which now consists of the President and the Treasurer and Drs. Brown, Pool and Miller. Subsequent to the

appointment of this Committee, a special Advisory Committee on Finance was appointed. This Committee consists of Mr. Edwin G. Merrill, President of the Bank of New York and Trust Company, Mr. George Blagden, of Clark Dodge and Company, Mr. James B. Mabon, of Mabon and Company, Dr. Edward Peaslee, formerly President of the Fidelity Bank, and Mr. Gerish H. Milliken.

Conferences with various members of this Advisory Committee have occurred, and a meeting was held on April 19, at which were present Drs. Lambert, Dana, Stewart, Milliken, Miller, Pool and Williams and Messrs. Merrill, Mabon and Blagdon. At this meeting it was pointed out by the three members of the Advisory Committee present that all of the larger educational and charitable organizations in New York were not hampered in the investment of their funds by restrictions which limit the investment to securities legal for trust funds. The Advisory Committee pointed out that the Trustees of the Academy by and with the advice of a special advisory committee could without undue risk invest in securities which were not legal for trust funds. The Committee recommended that the restrictions imposed by the above by-law be removed.

This matter was discussed at the Trustees' meeting and at the Council, and both bodies recommend that the above by-law be omitted.

RECENT ACCESSIONS TO THE LIBRARY

- Aaron, C. D. Diseases of the digestive organs. 4. ed.
Philadelphia, Lea, 1927, 927 p.
- Angeli, A. L'esofago toracico in chirurgia.
Bologna, Cappelli, 1926, 112 p.
- Attilio, O. Z. Cirrosi grasse e cirrosi tubercolari del fegato.
Pavia, Suc. frat. Fusi., 1926, 132 p.
- de Barros Barreto, A. L. C. A. Estudos epidemiologicos sobre
las gastro-enterites infantis.
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- Bauer, B. A. Woman.
London, Cape, 1926, 412 p.

- Biologie (Die) der Person. Hrsg. von T. Brugsch & F. H. Lewy. V. 1.
Berlin, Urban, 1926.
- Bodlaender, H. Die Syphilis der Mundhöhle.
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- Breitner, B. Die Bluttransfusion.
Wien, Springer, 1926, 113 p.
- Cavazzi, F. Il sistema glandolare e nuove vedute in medicina.
Bologna, Zanichelli, 1926, 39 p.
- Cavazzi, F. Ringiovanire. La funzione energetica della secrezione interna testicolare. . . .
Bologna, Zanichelli, 1926, 65 p.
- Cohn, T. Die periperischen Lähmungen.
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- Dakin, W. J. The elements of general zoology.
London, Oxford Univ. pr., 1927, 496 p.
- Damaye, H. Éléments de neuro-psychiatrie. 2. éd.
Paris, Maloine, 1925, 204 p.
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- De Lee, J. B. Obstetrics for nurses. 8. ed.
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- Doniselli, C. Udito e sensi generali.
Milano, Soc. an. istituto ed. Sci., 1927, 386 p.
- Du Bois, E. Basal metabolism. 2. ed.
Philadelphia, Lea, 1927, 431 p.
- Gelera, M. Contributo alla biochimica delle costituzioni.
Milano, Soc. Anonima, 1927.
- Gerini, C. Patogenesi e diagnosi della malattia di Flajani-Basedow.
Livorno, Giusti, 1926, 197 p.
- Greil, A. Wie verhüten Kulturmenschen das Krebsleiden?
München, Lehmann, 1926, 112 p.
- Grey, E. C. Practical chemistry by micro-methods.
Cambridge, Heffer, 1925, 124 p.
- di Guolielmo, G. Le porpore emorragiche.
Pavia, Tipo-coöperativa, 1926, 149 p.

- Handbuch der Haut- und Geschlechtskrankheiten. . . . Hrsg. v.
J. Jadassohn. V. 1, pt. 1 & v. 19.
Berlin, Springer, 1927.
- Hemmeter, J. C. Master minds in medicine.
New York, Med. Life pr., 1926, 771 p.
- Horton, L. H. Dissertation on the dream problem. 2. vols.
Philadelphia, Cartesian Research Soc., 1925.
- Hunt, H. L. Plastic surgery of the head, face and neck.
Philadelphia, Lea, 1926, 404 p.
- Jellinek, S. Der elektrische Unfall.
Leipzig, Deuticke, 1925, 142 p.
- Kennedy, J. W. Practical surgery.
Philadelphia, Davis, 1926, 861 p.
- Körper und Arbeit. Hrsg. von E. Atzler.
Leipzig, Thieme, 1927, 770 p.
- Lake, F. W. Ultra-violet radiation in dental pathology.
Ft. Atkinson, Wis., Hoard, 1926, 112 p.
- Lenz, A. Grundriss der Kriminalbiologie.
Wien, Springer, 1927, 252 p.
- Lewis, G. N. The anatomy of science.
New Haven, Yale pr., 1926, 221 p.
- McDowell, R. J. S. Clinical physiology.
London, Arnold, 1927, 424 p.
- McHale, K. Comparative psychology and hygiene of the over-
weight child.
New York, Teachers Coll., 1926, 123 p.
- Muir, R. Bacteriological atlas.
Edinburgh, Livingstone, 1927, 134 p.
- Nicolle, M. Éléments de microbiologie générale et d'immunol-
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Paris, Doin, 1926, 358 p.
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- Paton, D. M. A solution of the septic problem.
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Geneva, Tipo. sociale, 1927, 227 p.
- Piersol's normal histology. 13. ed. by W. H. F. Addison.
Philadelphia, Lippincott, 1927, 477 p.

- Przibram, H. Die anorganischen Grenzgebiete der Biologie.
Berlin, Borntraeger, 1926, 240 p.
- Raskop, E. Leitfaden zur Brillenbestimmung.
Berlin, Meusser, 1927, 192 p.
- Rogers, C. G. Textbook of comparative physiology.
New York, McGraw-Hill, 1927, 635 p.
- Rosenau, M. J. Preventive medicine and hygiene. 5. ed.
New York, Appleton, 1927, 1458 p.
- Russell, E. H. Ultra-violet radiation and actinotherapy. 2. ed.
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- Sanarelli, G. Les entéropathies microbiennes.
Paris, Masson, 1926, 227 p.
- Scala, G. Le ragioni morfologiche ed organogenetiche della Bagotonia e della Simpaticotonia.
Napoli, Idelson, 1926, 106 p.
- Silverman, S. L. Principles and practice of oral surgery.
Philadelphia, Blakiston, 1926, 326 p.
- Simon, G. & Redeker, F. Praktisches Lehrbuch der Kindertuberkulose.
Leipzig, Kabitzsch, 1926, 425 p.
- Simon, P. W. Fundamental principles of a systematic diagnosis of dental anomalies.
Boston, Stratford Co., 1926, 378 p.
- Sokoloff, B. Recherches cytologiques et biologiques consacrées au problème du cancer.
Vienne, Haim, 1926, 149 p.
- Spitzzy, H. Die körperliche Erziehung des Kindes. 2. Aufl.
Wien, Springer, 1926, 424 p.
- Steadman, F. St. J. Pyorrhoea alveolaris.
London, Kimpton, 1927, 263 p.
- Strasheim, J. J. A new method of mental testing.
Baltimore, Warwick, 1926, 158 p.
- Thompson, H. H. & Ford, A. P. Tuberculosis of the lungs.
New York, Wood, 1927, 179 p.
- Transactions of the American gynecological society.
1926.
- Trenti, E. La sanocrisina nella cura della tubercolosi polmonare.
Roma, Pozzi, 1926, 90 p.
- Waite, J. H. Saving eyesight after mid-life.
Cambridge, Harvard pr., 1927, 48 p.

- Werner, H. Einführung in die Entwicklungspsychologie.
Leipzig, Barth, 1926, 360 p.
- White, W. A. Outlines of psychiatry. XI. ed.
Washington, Nerv. . . . dis. pub. co., 1926, 408 p.
- Zinsser, H. A textbook of bacteriology. . . . 6. ed.
New York, Appleton, 1927, 1053 p.
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FELLOWS ELECTED MAY 5, 1927

David Goldblatt, M.D., 595 West End Avenue.
Henry Robert Kutil, M.D., 105 East 80th Street.
James Raymond Lutz, M.D., 21 West 74th Street.

FOR ASSOCIATE FELLOWSHIP

Enid Muriel Oppenheimer, B.Sc., 124 East 61st Street.



DR. WALTER B. JAMES

OBITUARY NOTICES

DR. WALTER B. JAMES

The medical profession of New York suffers a great loss by the death of Dr. Walter B. James.

Dr. James was born in Baltimore, May 5, 1858, and died in New York, April 6, 1927. He graduated from Yale College in 1879, and after studying biology for a year at Johns Hopkins University he entered the College of Physicians and Surgeons of New York, from which he graduated in 1883. He had his medical training in Roosevelt Hospital and supplemented it by two years in the clinics of famous internists of Austria and Germany, and in the laboratories of Virchow and Koch.

He began to practice in New York in 1886. His professional life was closely identified with two institutions: the Medical College of Columbia University and The New York Academy of Medicine, and he was in succession attending physician to Bellevue, Roosevelt and Presbyterian Hospitals.

In Columbia University Medical School he passed from Clinical Lecturer in 1892 to Professor of Practice of Medicine in 1902. He filled the latter position nine years, and then resigned to become Professor of Clinical Medicine, which he remained until 1918. He was one of the most active members of the New York State Hospital Development Commission which was established in 1915, was the first Chairman of the State Commission for Mental Defectives following its creation in 1918, served for a number of years as President of the National Committee for Mental Hygiene, and was a leading member and advisor of the New York State Committee on Mental Hygiene of the State Charities Aid Association. During the latter years of his life he served Columbia University as Trustee.

Dr. James was elected a Fellow of the Academy in 1889. He was Vice-President, 1912-1914, President, 1915-1918, and Trustee since 1919. He served the Council continuously from 1912 to the time of his death. He was deeply concerned with the Academy's material and spiritual prosperity and he spared no strength or sacrifice to promote its projects and promises. During his Presidency the entire program for the stated meetings fell upon him; so many of his colleagues were absent in the War. These

DR. CHARLES HOWARD PECK

Dr. Charles H. Peck made a particularly notable contribution to practical surgery and to good citizenship.

He inherited the sturdy qualities of the New England pioneer. He applied his great talents to the developing and practicing of surgery and he was always a broad-minded citizen, interested in the affairs of the Commonwealth and striving for the high ideals which were a part of his nature.

After a general course of study in the schools of his native town, Newtown, Connecticut, and the completion of the prescribed course of medical study in the College of Physicians and Surgeons in New York, he was graduated in 1892 with the highest honor which that institution then gave, the first Harsen Prize.

His three years' internship in the New York Hospital included both medical and surgical training. The good record which he made there resulted in his appointment as Attending Surgeon to the then recently-established French Hospital in 1897. He was then only twenty-seven years old and only two years had elapsed since his hospital internship.

With the advantages of this position, his general executive ability and his marked surgical talent soon led to the establishment of a valuable surgical service. He there made a notable contribution to the surgery of rectal cancer. He appreciated the possibility of ligating the protruding end of a well-mobilized upper segment of intestine and thus promoting the cleanliness of the wound during the first twenty-four or forty-eight hours of its healing. He found the procedure practicable and thus really established an epoch in the treatment of the disease. He continued his work at the French Hospital with marked success until 1909.

In 1903 he was appointed Assistant Surgeon to the Roosevelt Hospital. Three years later he was appointed Junior Surgeon, and in 1909 he became Attending Surgeon in that institution. Thus, at the age of thirty-nine, he was placed in control of a particularly important surgical service. He conducted this service with marked success for seventeen years, and made many contributions to the development of surgical science, particularly in the surgery of the stomach, the large intestine and the spleen.

At America's entrance into the World War he organized the Mackay Unit of the Roosevelt Hospital, which later made a notable record in carrying on the work of Base Hospital No. 15 at Chaumont, France. He was appointed Senior Consultant in General Surgery to the A. E. F. and was later recalled to this country to be one of the chiefs of the Department of General Surgery at Washington. He received the Distinguished Service Medal from the United States Government in 1919, and was twice similarly honored by France.

He was Professor of Clinical Surgery in Columbia University for many years.

He was active in the work of the Academy of Medicine, serving as Chairman of the Surgical Section and as Vice-President of the Academy. He also served as President of the County Medical Society. He was a member of many surgical societies and was consulting surgeon to several hospitals.

He was interested in forestry, in farming, and the other enjoyments of country life. He maintained a model farm and a valuable herd of Guernsey cattle at Newtown, Connecticut, and kept up public-spirited and helpful interests in the life of the community.

His family life was particularly happy, but the death of his eldest son while in the war service in France was greatly mourned.

He had a peculiar charm of personality. One of his associates said he never heard anyone "knock Peck." His kindness, thoughtfulness, generosity and general helpfulness and fairness were most noteworthy. He had a host of friends, and those who knew him intimately and the many young men whom he trained in surgery were his loyal admirers.

CHARLES N. DOWD



DR. ROBERT F. WEIR

DR. ROBERT F. WEIR

Dr. Robert Fulton Weir, who was President of The New York Academy of Medicine from 1900 to 1903, died April 4th at the age of ninety, after a gradual decline of strength due to his years.

He was the last survivor of a distinguished company of surgeons of New York City, among whom were Sands, Markoe, Thomas, Bull, McBurney, McCosh, and Hartley.

As professor of surgery in the College of Physicians and Surgeons, from 1873 to 1903, he taught many of the men of this country now distinguished, who came from all parts to attend his clinics and to watch his operations, and he imbued them with enthusiasm for their profession, as well as sound knowledge of its principles. His wide experience, gained chiefly in the Civil War, in which he served as surgeon in charge of the hospital of Frederick, Maryland, one of the largest Government hospitals, from 1862 to 1865; his ample knowledge of surgery gained by familiarity with home and foreign literature; his skill in the varied lines of operative work; all combined to place him in the front rank of the surgeons of his time. And his genial nature, delightful personal manner, wide interest in art and letters and life outside of his profession, added to the esteem and affection in which he was held by his friends. He visited Europe many times and also went to Japan and China. Those of us who travelled with him found him keen in his appreciation of new places and sights, never weary and easily adapting himself to the discomforts of travel without complaint.

As Attending Surgeon in the New York Hospital from 1876 to 1903 he was an indefatigable worker, without regard for financial return, for during much of that period the hospital was given over to charity patients and private wards were not opened. This industry is evidenced by the very long list of his publications in the medical press during these years, more than a hundred being mentioned in the *History of the College of Physicians and Surgeons* published in 1900. During this period the introduction of Lister's methods of antiseptic and later of aseptic surgery was the subject of the greatest interest, and Prof. Weir was among the first to adopt, urge and teach the modern methods, which

eventually revolutionized surgical procedure. While his chief work was in abdominal surgery, he was the first in this country to operate for a brain tumor under the direction of Seguin, and the success of that operation led him to make many contributions to the surgery of the head and brain. There is hardly any field of surgery in which his published articles do not increase knowledge. And his diagnostic wisdom and good judgment combined with his skill in operative procedure added to his reputation, and in many lines made him the chief authority of his time.

His ability was acknowledged everywhere by his confrères. He was elected president of the American Surgical Association in 1900, member of the International Surgical Association, president of the New York Surgical Society, of the Practitioners' Society, of The New York Academy of Medicine and of the Greater New York Medical Society. In 1895 he was made a corresponding member of the Société de Chirurgie of Paris; and in 1905 an honorary fellow of the Royal College of Surgeons of England. At the close of his hospital service during the Civil War he was publicly thanked in the general orders of the Surgeon-General's Office.

Dr. Weir was twice married. His first wife was Maria Washington McPherson, of Virginia, whom he met during his surgical service in Frederiek, and who for many years made his home a delightful centre of entertainment. They had one daughter, Mrs. La Montagne, in whose home Dr. Weir spent the last years of his life. His second wife, who was Mrs. Alden, died a few years after their marriage.

M. ALLEN STARR

ISHAM GREEN HARRIS, M.D., Brooklyn State Hospital, Brooklyn, N. Y.; graduated in medicine from New York University in 1890; elected a Fellow of the Academy January 3, 1918; died April 21, 1927. Dr. Harris was a Fellow of the American Medical Association, a member of the American Psychiatric Society, a member of the Neurological Society and Superintendent of the Brooklyn State Hospital.

HERBERT CERDA DE VILARRESTAU CORNWELL, A.B., M.D., 40 East 41st Street, New York City; graduated in medicine from Harvard Medical School in 1900; elected a Fellow of the Academy November 7, 1912; died April 25, 1927. Dr. Cornwell was a Fellow of the American Medical Association, a member of the American Psychiatric Society and consulting physician to the Neurological, Fordham and Rockaway Beach hospitals.

SEYMOUR BASCH, M.D., 40 West 88th Street, New York City; graduated in medicine from University Medical College, New York City, in 1894; elected a Fellow of the Academy January 7, 1909; died April 26, 1927. Dr. Basch was a Fellow of the American Medical Association, a member of the American Gastro-Enterological Society, a member of the Alumni Association of Lenox Hill Hospital, attendant physician at Lebanon Hospital and consultant Gastro-Enterologist to Rockaway Beach Hospital.

HENRY KOPLIK, A.B., M.D., 30 East 62nd Street, New York City; graduated in medicine from the College of Physicians and Surgeons, New York City, in 1881; elected a Fellow of the Academy October 4, 1888; died April 30, 1927. Dr. Koplik was a Fellow of the American Medical Association, a member of the American Society of Physicians, a member of the American Pediatric Society, consulting pediatricist to Mt. Sinai Hospital, and consulting physician to the Hospital for Joint Diseases and the Jewish Maternity Hospital.

THE NEW YORK ACADEMY OF MEDICINE

VOL. III

JULY, 1927

No. 7

ABSTRACTS OF PAPERS PRESENTED AT SECTION MEETINGS

Section of Pediatrics, December 9, 1926

DIETARY OF THE CHILDREN'S SERVICE CITY HOSPITAL

WALTER LESTER CARR

In the arrangement of a dietary for a children's hospital, consideration must be given to food value, palatability and last, but not least in a city institution, to cost per patient. The first of these may be easy, especially for babies and young children where milk, cereals and vegetables will be all the articles required for proper nutrition. For older children, however, there will be difficulty in arranging a dietary that will be palatable, especially if a child's digestion has been spoiled by irregularity in meals and by food of an unsuitable character. Such children will be hard to feed until they become accustomed to a hospital table. It was with these facts in mind that the dietary at the City Hospital was planned, for food value, palatability and cost. The diet sheet in use on the pediatric service was drawn up after a careful survey, and in its preparation I was assisted by Dr. George J. Plehn, house-physician on the pediatric division, now radiologist to the hospital. The feeding ward of twenty-five beds has the advantage of a supply of Walker Gordon milk, certified by the Milk Commission of the Medical Society of the County of New York. The cost of such certified milk adds to the general expense of the

diet and increases the per capita rate for the service, but as fresh certified milk is the basis for infant feeding, its value is not to be calculated too closely, especially as it does away with many items of hospital expense and lessens the need for nursing, as a baby well nourished and comfortable does not require so much attention as an enfeebled malnourished one.

The articles selected for older children, of an average age of 5.2 years, were chosen for food value, palatability and availability; the last being important, as in the Department of Public Welfare food is bought by contract and its distribution to city institutions must depend upon market conditions. Although all food named in the dietary was not chosen entirely for its caloric value, attention was paid to it as essential to a proper understanding of nutrition.

The milk included in the diet of older children is, unless by special order calling for certified milk, the regular pasteurized supply obtainable in New York City. This milk is required by the Department of Health to be of a 3 per cent. butter fat—1 per cent. less than certified milk. When reading the sample table of diet, I wish it understood that the *daily allowance* and the *daily amount consumed* are not the same, as the daily allowance includes articles in excess of the amount consumed, because the supplies for the wards must be a maximum and not a minimum, lest an extra hospital census should reduce the food per capita below what is needed for each child's nutrition. For example: each child is allowed $1\frac{1}{2}$ oz. of butter per day, but not all is consumed. The sugar allowance is $2\frac{1}{2}$ oz. a day, while the amount consumed is only an average of 1 oz. plus, a day, so that sugar for special diet is available. Milk is in the same category, as there is a daily allowance of one quart for each child, but the milk calculated is used for custards and selected diet. Meat in chop has to be computed by weight, which includes bone, thus there is a loss in caloric intake that can only be averaged and should not be included in the tables. Cereals are used every day, but the one most liked is oatmeal. Prunes, contrary to popular opinion, are liked by the children. Apples and other fruit are not so much in demand as oranges.

<i>Sample Breakfast</i>		<i>Calories</i> ¹	<i>Cost</i>
Bread	2 oz.	160	.0046 cents
Butter	$\frac{1}{2}$ oz.	75	.0085 "
Oatmeal	$\frac{1}{4}$ cup, cooked	100	.0019 "
Milk	12 oz.	252	.0420 "
Sugar	$\frac{1}{2}$ oz.	60	.0017 "
Orange	1	56	.0346 "
		<hr/> 703	<hr/> .0933
<i>Sample Dinner</i>			
Bread	2 oz.	160	.0046 cents
Butter	$\frac{1}{2}$ oz.	75	.0085 "
Milk	8 oz.	168	.0280 "
Potato	8 oz.	260	.0136 "
Tomato	3 oz.	30	.0123 "
Egg	1	80	.0288 "
Fish	8 oz.	150	.0270 "
		<hr/> 923	<hr/> .1228 With Fish
or			
Chop	8 oz. (less wgt. of bone, $\frac{1}{4}$ oz.)	425	.1200
		<hr/> 1,198	<hr/> .2158 With Chop
<i>Sample Supper</i>			
Milk	12 oz.	252	.0420 cents
Bread	2 oz.	160	.0046 "
Butter	$\frac{1}{2}$ oz.	75	.0085 "
Oatmeal	1 oz.	100	.0019 "
Sugar	$\frac{1}{2}$ oz.	60	.0017 "
Prunes	1 oz.	80	.0051 "
Crackers	1 oz.	100	.0075 "
		<hr/> 827	<hr/> .0713
Daily amounts including egg and			
chop in sample dinner—Calories.....			Cost ² .3804
2,828			
Less waste ...			500
			<hr/> 2,328

¹ Calories estimated by Dr. I. J. Levy, in charge of the metabolic ward at the City Hospital, based in part on Locke's tables.

² Cost per capita U. S. Soldier, 36 cents. Cost per capita U. S. Cadet at West Point, 80 cents.

<i>Daily estimated allowance</i>		<i>Calories</i>	<i>Cost</i>
1 Orange or Orange Juice	1	56	.0346 cents
Oatmeal	$\frac{3}{4}$ cup, cooked	100	.0019 "
Bread	12 oz.	960	.0276 "
Sugar	2 $\frac{1}{2}$ oz.	300	.0087 "
Milk	1 quart	672	.1100 "
Butter	1 $\frac{1}{2}$ oz.	340	.0384 "
Lamb Chop	8 oz.	850	.1200 "
or			
Fish	8 oz.	300	.0270 "
Potato	8 oz.	260	.0136 "
Fresh Spinach	8 oz., as purchased	44	.0600 "
or			
Tomatoes	3 oz.	30	.0123 "
Egg	1	80	.0288 "
Prunes, dry	2 oz., as purchased	160	.0102 "
Crackers	1 oz.	100	.0075 "
Custard	4 oz.	174	.0245 "
{ Milk, 4 oz.			
{ Sugar, $\frac{1}{2}$ oz.			
{ Egg, $\frac{3}{8}$ oz.			
Total calories using chop and spinach.....		4,096	.4858 cents
Total calories using fish and tomatoes.....		3,532	.3451 "

The nurses in the diet kitchen consider a fair deduction is 500 calories for each child; part of this is taken by older children and some no doubt is wasted.

Langworthy, U. S. Department of Agriculture, calculates that a man without work requires 2,450 calories; with light work 2,700 calories.

Section of Surgery, February 4, 1927

TREATMENT OF ACUTE SUPPURATIVE PLEURISY IN CHILDREN

JOHN V. BOHRER

Suppurative Pleurisy in children presents a difficult problem. It is essentially a secondary disease, a child's vitality having already been depleted by primary pneumonia. Complications such as acute otitis media or recurrence of pneumonia, especially in cold windy months, are very common, and this markedly increases the severity of the disease and in infants (those under two years of age) this disease is particularly severe. The older text books

of pediatries state that the mortality in suppurative pleurisy in infants under one year of age is one hundred per cent. Fortunately this is not the case at present. In our series the youngest patient operated on for suppurative pleurisy was three weeks old. This patient recovered as did many others in the infant group.

The plan of treatment should fulfil the following requirements, and in so far as it yields good results must be accepted as satisfactory:

1. Proper treatment of the primary disease with early recognition of the suppurative pleurisy.
2. Low mortality.
3. Minimum anatomical and physiological deformity.
4. Prevention of complications.
5. Early restoration to health.

In the formative stage, if there is distress, repeat aspiration as often as necessary. In a few instances, in streptococcus cases, where the re-accumulation of pus is very rapid, the air-tight syphon drainage or suction method is used, but this is not entirely satisfactory; repeated aspiration is the better plan.

When the fluid is frank pus, and, as is often the case, the temperature from the pneumonia has abated, open drainage is instituted.

Intercostal drainage with the so-called "flapper tube" is the method used. A "flapper tube" is made by fitting a glove finger (one that has been softened by repeated sterilization) on the distal end of a fenestrated rubber tube as a projection, the tube having been cut with a sixty-degree bevel, forming a valve that readily allows fluid and air to escape with expiration, but which closes with inspiration. This is an aid in lung expansion, as it tends to restore the negative intra-pleural pressure, and is of use in irrigating at the time of dressing, as it forms a funnel through which irrigating fluid is passed into the chest cavity.

The operative procedure in a suppurative pleurisy is always done with local anesthesia. The patient, if not too sick, is allowed to sit up; cooperation is more likely to be had in this position.

A small incision is made in the seventh intercostal space near the mid-axillary line. Naturally the site of the incision varies

with the location of the pus. A "flapper tube" is introduced and the pus allowed to run out. The tube is held in place by one silk-worm stitch. At no time have there been any disturbing symptoms caused by completely evacuating the cavity at operation. Irrigation is started in the next few days, the exact time depending on the condition of the patient and the amount and character of the drainage. Usually on the fourth day the cavity is irrigated, the patient reclining with wound uppermost. Saline is introduced through the "flapper tube," the measured amount determining the size of the cavity. If no coughing is produced, Dakin's solution is then used cautiously. If there is no "gassing" the cavity is now daily cleansed by thorough irrigation with Dakin's solution. This daily irrigation is not an attempt to sterilize the cavity, but is sufficient to keep thin and to deodorize the discharge.

When judged by temperature, appetite, type of discharge and general condition it is found that the patient has not materially improved at the end of eight or ten days, and there is no acute otitis media or recurrence of pneumonic process, we conclude that we are dealing with a complicated form of suppurative pleurisy, such as multiple loculi or a markedly thickened pleura preventing complete drainage, and exploratory thoracotomy is done.

Under light ether or gas anesthesia, an intercostal incision long enough to give proper exposure is made and rib spreaders introduced. If more exposure is required, a rib may be cut at one or both ends and telescoped, giving the desired extra exposure. This gives the advantage of seeing and under visual guidance dividing vicious adhesions, doing a partial decortication or any other procedure necessary, thus converting multiple loculi into a single cavity, or placing drainage where it is needed. This may appear radical surgery, but properly done it produces little shock, reduces mortality, shortens convalescence and causes

Suppurat.

It is essential treatment in suppurative pleurisy is, first, already been de; second, skilful nursing and high caloric diet; as acute otitis sfusion.

cold windy montod, by the Lindemann method, is given. With the severity of thately matched and given in proper amounts, of age) this disease seen.

It is very difficult to make a classification of suppurative pleurisy cases, but for clinical purposes they may be divided into three groups:

- a. Cases having good prognosis.
- b. Cases having poor prognosis.
- c. A middle group whose prognosis is largely dependent upon the kind of treatment received.

a. Good prognosis.

In this clinical grouping about forty per cent. of the patients come under the heading of good prognosis. By this is meant where the patient has inherited a healthy constitution, has been surrounded by fair conditions during health, where the primary disease was promptly and properly diagnosed and treated, and which developed encapsulated suppurative pleurisy, which in turn was promptly diagnosed and received proper care during the formative period of the disease. Such patients will recover if they are given adequate drainage by any of the methods advocated. The period of invalidism will be minimum. The type of organism is a minor matter. Recovery statistics in this group are very gratifying.

b. Poor prognosis.

In this group our series at Bellevue Hospital shows about twenty-five per cent. Through the Social Service Department we have found the living conditions included unhealthy parents, dirty, unsanitary homes, under-feeding and exposure. Rickets is almost universal. Add to this background a virulent infection, the primary disease improperly diagnosed, a starvation diet, and the child sent to the hospital only when in extreme condition. Such cases, with an encapsulated suppurative pleurisy, will often do surprisingly well if given adequate drainage and plenty of food. But in a patient with a virulent infection with complicated pleural involvement, or one who has already developed complications such as acute otitis media, or pneumonia of the opposite lung, the prognosis is universally bad regardless of the type of operative procedure.

c. Middle group where prognosis is largely dependent upon surgical procedure.

The remaining thirty-five per cent. fall into this group. In this class, where the background has been only fair, the treatment of

the primary disease good, but the infection virulent, the surgical treatment largely determines the ultimate outcome.

One hundred and fifty-four children's cases are here reported covering a five-year period from 1919 to 1924, inclusive. These children, ranging from infancy to twelve years of age, were admitted to Bellevue Hospital on Children's Surgical Service. These cases were divided into age groups for a statistical study. The first or infant group includes all children under two years of age; the second from two to six years, and the third from six to twelve years. The mortality of the first or infant group, forty-eight cases, is 35.4 per cent. For the second group, seventy-three cases, it is 10.9 per cent. For the third group, thirty-three cases, it is 3.3 per cent. The mortality for the entire series of a hundred and fifty-four cases is 16.8 per cent.

Section of Surgery, February 4, 1927

THE CONTROL OF POST-OPERATIVE HEMORRHAGE FOLLOWING NEPHRECTOMY FOR REMOVAL OF RENAL CALCULI

DOUGAL BISSELL

Ureterotomy for the removal of renal calculi has certain advantages, but should the ureteral incision fail to heal, one is driven to the necessity of removing the kidney.

Ureteropyelolithotomy was resorted to by the author from 1901 to 1916 in cases of renal calculi. In the latter year there came under his care a patient with a stone in the renal pelvis of considerable size. This stone was removed through an opening made in the upper ureter, but its delivery caused an irregular extension of the incision which was difficult to repair, and it became infected, with a resulting persistent fistula. Nephrectomy was finally necessitated. This unfortunate outcome directed the author's attention to the development of a nephrectomy technique for the removal of renal calculi with less liability to urinary fistula, and provision for the control of renal hemorrhage. The fea-

ture of the technique pertained chiefly to the closure of the renal incision and the removable sutures encircling the kidney, which are utilized, should necessity demand it, to stop post-operative hemorrhage.

When the kidney is delivered and the ureter freed from its cellular tissue and from the renal vessels, these vessels are compressed directly by a ring forceps covered with rubber. A median longitudinal incision is now made through the kidney and the calculi removed. The kidney incision is closed with a cambrie needle large enough to accommodate No. 0 chromic catgut, the suture is doubled but its free ends are not tied. The small canal made by the needle is completely filled by the double suture. The needle is passed through the kidney substance on a plane with the cut edges of the pelvic incision and repassed on the same plane in the opposite direction so as to form a loop. The securing of this suture may be made in one or both of the following ways: First, the needle end of the double suture, after its final emergence, is passed through the double loop on the opposite surface and tied over the convex border to the free ends. Second, the double suture is severed from the needle and one of the severed sutures tied as a mattress suture while its companion single suture is dealt with in a similar manner, as are the double sutures in the first method. Two B and B silk sutures are now passed completely around the kidney, one just above the upper and the other just below the lower limit of the hilum. To prevent these sutures from losing their positions they are made to penetrate superficially the anterior and posterior surfaces of the kidney and deep enough only to secure an anchorage in the fibrous capsule. After releasing the hemostatic clamp and returning the kidney to its bed, the free ends of the B and B sutures are passed through all of the tissues on one side and the other of the lumbar incision and each tied in a bowknot over a bolster of iodoform gauze. These sutures, when tightened as necessity indicates, will ensure hemostasis and anchorage of the kidney to the abdominal wall.

The author reports a case which had been operated upon by another surgeon in 1913 for the removal of three calculi from the left kidney. Part of the technique then used was the passing of a rubber drainage tube through the kidney wound into the renal pelvis for direct drainage.

Operation

A left lumbar incision was made and great difficulty was encountered in freeing the kidney from the abdominal wall, and an extensive area of kidney surface was severely traumatized. After freeing the ureter and renal vessels from each other and their encircling cellular structure, the vessels were grasped by a rubber-covered ring forceps and the kidney incised longitudinally. The stone was then extracted from the pelvis. A cambric needle large enough to accommodate No. 0 plain catgut and threaded with this as a double suture, ends not tied, was made to penetrate the kidney substance on a plane parallel with the cut edges of the kidney pelvis; the needle was then re-entered at a point less than 1-2 cm. from its exit and made to penetrate the kidney again on the same plane and emerge at a point at about 1 cm. from its original entrance. Four of these sutures were passed about 1 cm. apart, the needle end of each individual set of sutures was passed through the double loops on the opposite surface and tied to the free ends over the convex border. Two removable encircling sutures of B and B silk were passed about the kidney, one above and one below the limits of the hilum as previously described.

Post-Operative History

During the first twenty-four hours a small amount of blood was found in the urine. No recurrence of bleeding until the fifth day, when bleeding continued for four days. The lumbar wound was dressed on the seventh day. No bleeding discovered. On the eighth and ninth days a considerable amount was noted, also a considerable amount in the urine.

Calcium chloride, 15 grains, was then given internally, also calcium lactate, grs. 5, t. i. d. by mouth. The bleeding was checked for eighteen hours, then recurred and continued for two days in spite of the continued use of both calcium chloride and lactate salts.

On the thirteenth day the small, thin rubber drain was removed and the lower encircling B and B silk suture sustaining the kidney was untied and retied tightly over a fresh bolster of gauze. Bleeding at once ceased and did not recur.

It would appear that the early bleeding into the kidney pelvis was the result of the yielding of the plain catgut used to ap-

proximate the cut surface of the kidney, and therefore chromic catgut of the same size should be substituted for it. Bleeding from the lumbar region did not occur until the eighth day, which suggests that its source was the traumatized kidney tissue of the lower pole. As calcium salts were given a fair trial, but failed to check hemorrhage permanently, and as the steadily-increasing hemorrhage was immediately and permanently checked both internally and externally by tightening the lower B and B suture encircling the lower pole, the value of the removable and encircling sutures under these circumstances would seem demonstrated.

Section of Neurology and Psychiatry, February 8, 1927

TUMOR OF THE MEDULLA

GEORGE H. HYSLOP

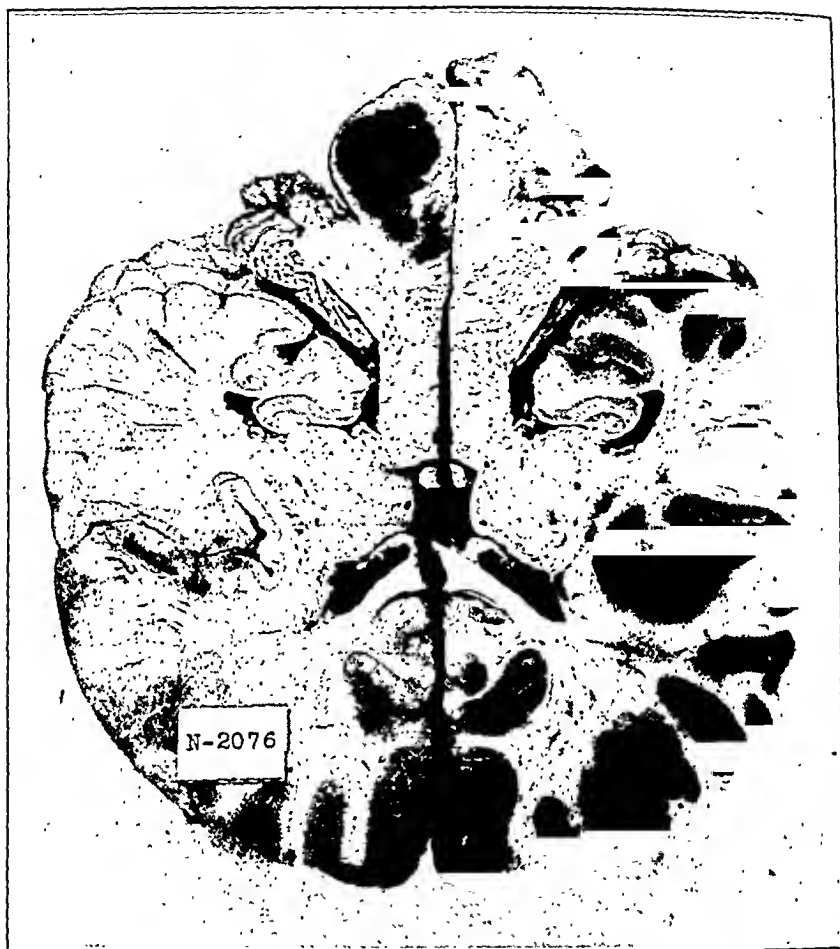
The patient was a boy of six whose past history was of no importance except possibly in that he had measles two months before the appearance of tumor symptoms.

In June, 1926, the parents noticed a gradually-increasing left internal strabismus. Because the boy seemed normal otherwise nothing was done about this. About the 10th of August thickening of speech and awkwardness in walking began. About the 20th of August difficulty in swallowing appeared, and a few days later there was clumsiness in the use of the right hand. During this time general weakness increased, and there seemed to be considerable loss of weight. Sleep was normal, there was no fever and the child suffered neither from headache nor vomiting.

About the last of August pain in the neck and back of the head developed and was troublesome whenever the child changed from the erect to the recumbent position.

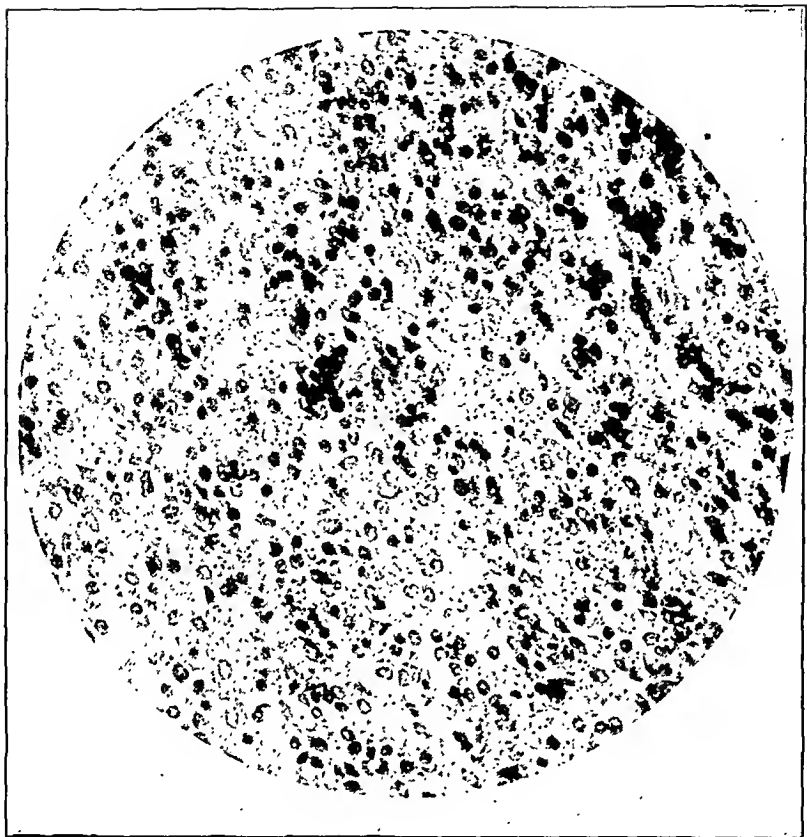
The child was examined on August 31st at the Post-Graduate Hospital. Skull X-ray was negative. Spinal fluid was normal and the eye grounds showed no evidence of intracranial pressure.

I saw the patient for the first time on September 3rd. The neck was held slightly flexed, and change of position seemed to be uncomfortable. The boy could neither stand nor sit without aid. Efforts to walk showed a marked cerebellar ataxia.



Cranial nerves showed the following abnormalities:

1. Venous engorgement of both retinae, blurring of the right disc and moderate edema of the left disc. The pupils were large and reacted normally.
2. Nystagmus, which was fine and rapid to the right, coarse and slow to the left.
3. Left external rectus paralysis.
4. Paralysis of the soft palate on both sides.
5. Speech almost impossible and voice almost a whisper.
6. Distinct weakness of the trapezius and sternocleidomastoid muscles.



7. Tongue atrophic on both sides. It could not be protruded. There was hypotonia of all extremities, more marked on the right.

Non-equilibratory tests were performed poorly, especially on the right.

There was hypoesthesia to all forms of sensation on the right.

The arm reflexes were diminished. Knee and ankle jerks were absent.

There was bilateral Babinski and ankle clonus, and positive confirmatory signs. (Chaddock, Oppenheim.)

A diagnosis of tumor in the posterior fossa was made. It was located as probably in the vermis and overlying the fourth ven-

tricle, with indirect effects upon the right hemisphere of the cerebellum and the medulla.

Before operation hypertonic solutions of magnesium sulphate were given by rectum. This procedure lessened pressure symptoms.

At operation, performed by Dr. Elsberg on September 7, a marked medullary pressure cone was observed. No tumor was visible. The child died of respiratory failure a few hours after operation.

Necropsy showed a large soft mass lying on the left antero-lateral aspect of the pons and extending downward and backward toward the medulla from within which it seemed to arise.

On section it was shown that the tumor practically (filled) replaced and dilated the normal limits of the medulla, and had grown outward, upward and forward.

Dr. Penfield has done the histological and photographic work.

Primary tumors of the medulla are rare. They probably represent not more than 1 per cent. of all tumors of the intracranial cavity.

In this case the symptomatology may be attributed to the hemorrhage within the tumor. The clinical course during the last three weeks of life was too rapid to be explained adequately by the growth of tumor tissue itself.

Macroscopical Report

Leptomeninges: They are normal in appearance. Pial veins, no congestion. It is difficult to make out what has happened to the basilar artery. It may perhaps have passed through the tumor.

Brain: It seems to be normal in consistency. The convolutional pattern is not altered. There is some flattening of the convolutions. The ventricles are not, however, increased in size. The aqueduct of Sylvius is not occluded. The fourth ventricle is at least as large as normal in its antero-posterior diameter although the lateral recesses are obliterated. The ependyma and choroid plexus appears normal. In the body of the medulla oblongata a tumor is seen which on cross section is of a somewhat gelatinous consistency. It seems to have arisen in the substance of the medulla and has pushed this structure out in all directions but

mostly backwards. It is about 3.5 cms. in diameter. The neoplasm projects outward through the pia on either side of the midline, making a sort of cauliflower excrescence. This excrescence is larger on the left-hand side than on the right, being about a centimeter in depth here and somewhat less on the right. For some curious reason this excrescence does not pass across the midline but reappears on the other side. There seems to be no gross invasion of the cerebellum nor any extension upward into the pons. In the right side of the medulla there is a blood clot several centimeters in diameter, showing that there has been a hemorrhage into the tumor in this portion sometime before death. The tumor therefore has arisen within the medulla itself; it is not covered with a capsule, although the line of demarcation between it and the medulla is quite easily seen. It has not shut off the aqueduct of Sylvius, and to judge from the appearance of the brain did not cause an increase of intracranial pressure during any length of time. The pressure from expansion due to the tumor would have been directly upon the medulla involving to a very limited extent the pons.

Microscopical Report

The neoplasm is made up of cells whose nuclei vary a good deal in shape. For the most part the chromatin network is moderately dense and a few chromatin granules are to be seen. Where the tumor is rapidly growing there is little cytoplasm. Fibers are stained with phosphotungstic acid but are less numerous here than in areas where the tumor seems to have grown less slowly. In the rapidly-growing portion the cytoplasm of the cells is small and there are occasional mitotic figures. The nuclei arrange themselves at times into pseudorosettes. There are no giant cells with bizarre nuclei as usually seen in *spongioblastoma multiforme*. In the portion of the tumor which seems to have grown less rapidly, especially in the portion which formed a cauliflower excrescence, the nuclei are larger and more elongated. The cytoplasm is more voluminous and is often carried into a long tail. There may be one or two tails, that is, the cells may be unipolar or bipolar. At the surface of the excrescence the tumor cells have arranged themselves beneath a superficial membrane very much like spongioblasts about the central canal. The cyto-

plasm of the cells is attached to the undersurface of the membrane, and at times the opposite pole of the cytoplasm is carried some distance away from the membrane. These cells seem to form fibers quite frequently. Neurofibrils pass through the tumor in large numbers in some areas, in others neurofibrils are almost absent. An occasional nerve cell is seen in the tumor which seems to be part of the neoplasm, but for the most part the contained nerve cells are evidently of the bulb itself and the tumor has infiltrated the tissue about them. It seems quite likely that all of the nerve cells are not neoplastic. In conclusion, the neoplasm is a rapidly growing one which has arisen within the substance of the bulb. It is very vascular in some areas and quite avascular in others. Fibers are formed which are neuroglial in nature. Although the tumor lacks the features of the usual *spongioblastoma multiforme* it must be called by that name.

Diagnosis: Spongioblastoma multiforme.

Section of Pediatrics, February 10, 1927

THE EFFECT OF PARATHYROID EXTRACT ON TETANY AND RICKETS IN INFANTS

LYNNE A. HOAG

A potent extract of parathyroid glands prepared in the manner described by Collip¹ was used in the treatment of six patients suffering from infantile tetany. The subcutaneous injection of adequate amounts resulted in rapid improvement of the clinical symptoms and signs, and caused an increase in the serum calcium concentration to normal or nearly so in from thirty-six to forty-eight hours. This state of improvement could be maintained by the daily injection of suitable decreasing fractions of the original effective dose. Omission of the parathyroid extract injections early in the course of treatment was followed by a return of symptoms and a lowered serum calcium concentration. This relapse was less liable to occur when the injections had been continued for a few days before withdrawal of the hormone.

¹ Para-thor-mone. Eli Lilly Co., described in "New and Nonofficial Remedies" (J. A. M. A., Nov. 14, 1925, LXXV, 1559).

The individual response to the quantity administered was so variable that the safe selection of dosage could be guided only on the basis of frequently-repeated analyses of the concentration of serum calcium. From the results secured in these six cases it is felt that a safe minimum dose of parathyroid extract calculated to raise the serum calcium 1 mg. per 100 c.c. in the average patient with infantile tetany, is approximately 5 units per kilogram of body weight. On this basis one can calculate the total dose necessary to elevate the serum calcium to approximately 10 mg. per 100 c.c.²

This total dose may be given at four- to eight-hour intervals in twenty-four to thirty-six hours.

The administration to an infant with active rickets of 820 units of parathyroid extract in the course of twenty-five days produced no recognizable roentgenologic changes in the zones of provisional calcification in the radius and ulna. On the seventeenth day after the beginning of a seven-day period of intensive ultraviolet radiation, the same infant showed distinct roentgenologic evidence of healing.

Studies of calcium and phosphorus balance were conducted on six patients in an attempt to determine the origin of the calcium mobilized by the injection of parathyroid extract. One normal infant and three with rickets showed varying degrees of diminution in their retention of calcium during the periods of parathyroid administration. This diminution resulted in a potential loss of calcium from the body in two patients and an actual loss in the other two patients. The extent of this potential calcium deficiency bore no constant relation to dosage. Two patients with infantile tetany failed to show a decrease in their calcium retention when given parathyroid extract; in fact, both showed slightly increased retentions. It is interesting to note that the initially low serum calcium values in these two patients were never raised to a normal figure during the course of treatment, this fact perhaps accounting for the lack of increased overflow excretion in the urine and stools and suggesting the possibility of a serum calcium threshold.

² Example—An infant weighing 5 Kg., and having a serum calcium concentration of 6 mg. per 100 c.c., could be given 100 units of parathyroid extract in 24 to 36 hours [$5 \text{ Kg.} \times 5 \text{ units} \times (10 - 6)$].

From these findings it is felt that the administration of parathyroid extract as a therapeutic agent is justified only when immediate and temporary elevation of the concentration of circulating calcium is desired over short periods of time.

Section of Ophthalmology, February 21, 1927

THE DEVELOPMENT OF THE GLAUCOMA SCOTOMA

A. H. THOMASSON

Elliott emphasizes the importance of scotometry as a means of diagnosing early noneongestive glaucoma, placing this method first in the list of diagnostic procedures. It is now thirty-seven years since Bjerrum described the early glaucoma scotoma, pointed out its importance in the diagnosis of this disease and described the method by which it could be detected and studied, and yet it seems that American Ophthalmologists have given little attention to this important diagnostic measure. This paper is offered in the hope that it may stimulate a greater interest in this subject. It attempts a detailed description of the three types of the glaucoma scotoma, and the progressive changes that occur in each type until the field defect is well advanced. The types of the scotoma described are: (1) Single-winged vertical; (2) double-winged vertical; and (3) single-winged horizontal. It stated that there also probably exists (4) a double-winged horizontal scotoma, but this has not been seen in its early stage. Lantern slides were shown illustrating the various types of scotomata. These were all obtained from patients of Dr. A. Knapp, and were shown by his permission.

Section of Ophthalmology, February 21, 1927

HISTORICAL PERSPECTIVES IN OPHTHALMOLOGY

ARNOLD C. KLEBS, Nyon, Switzerland

A very notable increase of interest in the history of Medicine has taken place in the United States during the last few years, stimulated by men of broad culture such as the late William Osler, Welsh, Cushing, Streeter and especially by the admirable systematic discussion of the subject in the textbook of Garrison. Efforts are made in various quarters towards making the culti-

vation of historical research a vital part of medical training; the fact that a historical habit of thought adds to the equipment of both practitioners and research workers is becoming widely recognized. The mere revelation of dates, of historical events, of the collections of old books and curios is helpful in this direction; the study of medical portraiture, of biography, of the intricacies of bibliography can become pursuits of absorbing interest well suited to dispel the tedium of professional routine. For critical analysis of historical evolution and for the philosophical appreciation of the relation of the various component factors to each other within this evolution, a deeper study of original sources becomes necessary, and it is most gratifying to note that in various parts of this country preparation also for such research work is being made.

The history of ophthalmology presents a well-tilled ground. Hirschberg and his school have laid its solid scholarly foundations, and in this country notably Drs. Harry Friedenwald and Casey Wood have made excellent contributions. The writer, having come in contact with ophthalmology but once in his life, when he prepared his inaugural thesis some thirty years ago, is unable to give more than superficial impressions, gathered in his general historical studies.

The larger part that optics occupies in ophthalmological science and practice bestows upon this branch of Medicine the right to truly scientific consideration such as no other possesses. If mathematic formulation is the criterion for a true science, as Descartes, Kant and Bertrand Russell held, then among all medical branches, and possibly in Biology, Ophthalmology holds first rank. But there is other basic knowledge needed by the ophthalmologist, knowledge of quantities that are not measurable or ponderable. It is that knowledge that comes through the careful training of both the cerebral and retinal eye in conjunction with that of the hand. It is the knowledge of the intelligent craftsman such as Hippocrates described so well in his famous expression of "tribe meta logoo." Philosophy evolving into Science by the road of mathematics, craftsmanship into art, seem to have thrived side by side during long ages without distinct influence of the one on the other. The former reached towering heights in Ancient Greece, the stream of the latter

seems to have flown steadily from the Orient to the Occident, along the route India, hellenistic-Alexandria, North Africa, Sicily, and Spain. Wherever the two streams met, as in Alexandria, in Byzantine realms, under Arab caliphs, during the so-called renaissance in the Middle Ages and way into our own times, practice could make notable strides ahead; wherever they flowed separately other cultural and political endeavors would prevail with the result of apparent medical stagnation.

An innate contempt which the man of the head seems to hold for the man of the hand has been in all times an obstacle to the harmonious evolution of the medical art. Ophthalmology has bridged the gulf more successfully than any other specialistic branch. In intimate contact with pure science, combining surgery with medicine, its adepts, in a limited field, have united in themselves, in their activities, the two historical streams, and thus pointed the way for an improved educational preparation of the larger field.

Section of Obstetrics and Gynecology, February 22, 1927

BRIEF DISCUSSION OF THREE CASES OF EXTRA-VESICAL URETERS

H. DAWSON FURNISS

Supernumerary ureters are quite common, but those with extra-vesical openings are rare—only 101 are reported in the literature. Of the 30 cases of supernumerary ureters that I have seen only three have emptied extravasically.

The condition should always be suspected when there is a history of constant dribbling, congenital, in addition to normal voiding.

The detection of the ureteral opening is at times very difficult, as this may be in the urethra, the vestibule of the vagina, or in the vagina itself. Frequently the function of the part drained by the ureter is insufficient to eliminate dye in concentrations that help in locating the orifice.

Methods of Diagnosis. History—the detection of the orifice of the ureter (at times after phenolsulphonephthalein, or in-

indigo-carmin administration, irregularity of the renal pelvis as shown by pyelogram. Filling the bladder with indigo-carmin solution and administering phenolsulphonephthalein intravenously. The leakage of a red or brownish-stained urine would prove an extra-vesical ureter (many times, however, the function is too impaired to eliminate the dye). At times a renal operative exploration may be necessary to locate the involved side. It must be remembered that 4 per cent. are bilateral—one of mine was.

Treatment has been by ligation of the ureters; implantation vaginally and abdominally of the ureter into the bladder; and resection of the kidney. The latter is the best procedure, and can usually be easily carried out. It removes the source of the trouble. With implantations there are often complications following—stricture, infection, and cystitis. In one of my cases I implanted the ureter into the bladder, and because of repeated attacks of kidney pain thirteen years later, resected the kidney.

Section of Obstetrics and Gynecology, February 22, 1927

UTERUS DUPLEX UNICOLLIS

(WITH COMMENTS ON MALFORMATIONS OF THE UTERUS)

WALTER T. DANNREUTHER

The formation of a normal uterus is contingent upon the fusion of the lower half of the apposed Müllerian ducts, with disappearance of the intervening duct walls, so that a single chamber (the uterine cavity) is created. Muscular fibres are developed in the subperitoneal tissues of the Wolffian and genital mesenteries of the embryo, which is some way decussate and interlock, thus leading to a coalescence of the Müllerian ducts. If the genital fold proves stronger than these interlocking muscle fibres, union of the Müllerian ducts may be partly or entirely prevented, so that an intermediate arrangement becomes permanent. In most instances of malformation of the uterus there is a parallel development of the two sides, although in some

cases the growth of one side may be arrested, the other pursuing its normal course.

There are six well-defined variations in malformation of the uterus. Their recognition is of importance chiefly because of their influence on the child-bearing function, and the diagnostic difficulties they present when complicated by tumor formation, to which they seem to be prone. The author has had 13 patients in 21 years with malformation of the female pelvic organs, 11 of whom were married; 5 of the 11 married women had never been pregnant, but the other 6 produced collectively 16 children and 11 miscarriages.

The six commonly-recognized types of malformation are: (1) uterus unieornis, (2) uterus subseptus, (3) uterus septus, (4) uterus bieornis unieollis, (5) uterus bieornis bicollis, and (6) uterus didelphys.

The author outlines the history of a patient from whom a specimen was removed that does not conform exactly to the specifications of any one of these six types of malformation.

Bimanual examination disclosed a uterine corpus, normal in size, symmetry, consistency, and mobility, deviated slightly to the right. On the left side there was an enlarged, hardened, pyriform and symmetrical structure, arising from a broad attachment just above the level of the internal os.

On opening the abdomen in the mid-line, the posterior-superior aspect of two perfectly-formed uterine bodies presented. The one on the left was larger than the other, but palpation determined that this was due to the presence of an intramural fibroid. The cleft between the uteri extended downward to the level of the internal os, which was located at a joint just above the cervico-vaginal junction. The visceral peritoneum covering the bladder and uteri was smoothly merged with that of the cul-de-sac and rectum throughout the interuterine cleft. A supra-vaginal hysterectomy was done, after incising the peritoneum on the posterior margin of the sulcus and freeing the upper limit of the bladder.

On opening the specimen, it was evident that each uterine corpus contained a normal cavity, which communicated with a single cervical canal. The left uterus contained an encapsulated, fasciculated fibroid tumor. The specimen can not be prop-

erly classified as either a uterus didelphys or a uterus bicornis unicollis. It is not a uterus didelphys because of the single cervix and cervical canal; and the very deep cleft extending all the way down to the level of the internal os, with the so-called recto-vesical ligament lying in the sulcus, removes it from the group of bicornate uteri. It can best be described as a uterus duplex unicollis.

Section of Obstetrics and Gynecology, February 22, 1927

A REPORT ON SPERM EXAMINATIONS IN OBSCURE CASES OF STERILITY

G. L. MOENCH

In most cases of sterility it is not very difficult to find the underlying cause or causes. There are, however, some infertile marriages in which the husband has many actively motile spermatozoa and the wife, also, appears normal. In such cases relative sterility (or as I call it selective fertility), biological incompatibility, vaginal acidity, sperma immunity and psychic causes are often made responsible for the failure of the woman to conceive. I have previously, however, been able to show that these factors can only rarely be at the bottom of the trouble. Vaginal acidity due to lactic acid and of the same acidity as a 0.5 per cent. lactic acid solution, can not possibly cause sterility, as the sperma live for hours in a 0.5 per cent. lactic acid solution, as I have determined by my own observations. Furthermore, the normal sperma do not remain in the vagina for any length of time, and lastly, it must be remembered that the alkaline semen itself reduces the vaginal acidity. Sterility due to sperma immunity is also problematical. I believe that in the obscure cases of sterility we must seek our explanation in the abnormalities present in the male and female germ cells. It is of course impossible to examine the female sex cells directly. At the same time the menstrual history, the vaginal flora, the palpitation of the ovaries, etc., should tell us whether or not the ova are normal.

The male germ cells fortunately can be examined directly, but such an examination should be done very much more in detail than is usually the case. Williams and Savage have shown in animals, especially bulls, that the morphology of the sperm heads is the most important source of information as to the fitness of the cells for reproduction, and the percentage of abnormal sperm heads ejaculated determines the fertility of the animal.

Williams and Savage, therefore, counted the number of abnormal cells per thousand and then measured and plotted 300 sperm head lengths. The fertile bulls showed less than 166 abnormal sperms per thousand and little variation in the size of the sperm heads, so that the graphs from such bulls were high and steep whereas those from bulls with poor breeding records were lower and more sloping.

Although up to the present I have been able to examine relatively few cases it seems, as far as I have gone, that the conditions found to prevail in animals are also true of man. Certainly the abnormal spermal changes found in bulls are also to be seen in human semen. At the same time it is evident from my examinations that the limits of normal variation are much higher in the species *homo* than in the bull, unless indeed these findings indicate a lowered fertility of modern humans. The number of abnormal sperms in fertile men was at times almost twice as high as in fertile bulls, and the corresponding graphs constructed from measuring 300 sperm head lengths also showed a greater slope. To test the accuracy of the method a second series of 300 cells was measured in some of the specimens and resulted in almost identical graphs.

Frequency of sexual intercourse alone had very little effect on the percentage of abnormal sperms present in any given semen specimen, although it markedly reduced the total number of these cells. It would seem also that general physical health greatly influences spermatogenesis.

Illustrated with 9 lantern slides.

BOOK REVIEWS

A NEW HISTORY OF MEDICINE¹

The volume before us forms one of the English Series, "The History of Civilization," edited by C. K. Ogden and Harry Elmer Barnes (American editors). It is handsomely printed on light-weight paper and illustrated with unique pictures of the better known leaders of medicine, with such other celebrities as Fernel, Le Clere, Bidloo, Cowper, Buffon, Bonnet, Erasmus, Darwin and Frederiek Dekker; also engravings representing medieval surgery, a medical consultation (16th century), uroscopy (17th century), and a labor case (17th century). A striking facsimile is that of the program of the first Medical Congress at Rome (1681-2). The chapters cover the evolution of medicine, Egyptian, Hindu and Oriental medicine, Greek and Alexandrian medicine (four chapters), Graeco-Roman medicine (five chapters), Islamic and Salernitan medicine, 16th, 17th and 18th century medicine (two chapters each), with terminal chapters on Organicism and Vitalism and the Evolution of Therapeutics. There is a separate chapter on the Hippocratic Oath and some twenty pages on Caelius Aurelianus, which seem a little out of proportion. The handling of the material is intelligent and the style is marked by an elegance and sobriety which suggest French models, indeed reads like a translation from the French. The viewpoint is, in fact, that of the classical French historians, with whose spirit the author, who holds the chair of his subject in the University of Geneva, is evidently imbued. He begins with the effective statement that to the uncultivated, medicine "is purely a procedure employed for the cure of disease. The physician is a kind of machine which furnishes remedies for human suffering"; whence he proceeds, by showing the dependence of rational medicine upon all the sciences, to the tactical position that the popular notion of medicine "leads us to conceive what probably was the conception of primitive man." The peo-

¹ An Introduction to the History of Medicine from the time of the Pharaohs to the end of the XVIIIth Century. By Charles Greene Cumston, M.D., with an Essay on the Relation of History and Philosophy to Medicine, by F. G. Crookshank, M.D. XXXII, 390 pp., 24 pl., 8°. New York, Alfred A. Knopf, 1926.

ple confuse general medicine with therapeutics, as did the primitive herb-gatherers and bone-setters. Cumston divides the progress of medicine into the instinctive (immanent) or intuitive, the theological, the metaphysical and the scientific phases, and emphasizes the important fact that to-day the science and the art of medicine are not really distinct but related, as basic scientific discipline and its practical applications, *i.e.*, as pure science and applied science. In the succeeding chapters, he gives valuable citations bearing upon Egyptian anatomy and semeiology, the legend of Jivaka as illustrating Hindu supremacy in surgery, an extended account of scientific tenets of the Ionian philosophers, of the Hippocratic Oath and Canon, of Galen, medical practice in Rome and so on, as indicated above. Very characteristic of the entire volume is the analysis of the philosophical ideas which activated the many theoretical systems of the great physicians before the scientific period, the line of thought in which Daremberg and Neuburger have preëminently excelled. This revival of medical philosophy, which is now in the air everywhere, for instance in the recent essays of Bier (Berlin), is the theme of Dr. Crookshank's introductory essay, which takes for its motto a passage from Théophile de Bordeu: "I was a dogmatist at 20, an observer at 30, an empiric at 40 and have no system at 50." In a very lively and discursive manner, Crookshank (his "Irish" well up) argues that the present chaos of "scientific" or laboratory medicine may be due to the old Cnidian error of sticking labels on to alleged final causes and assigning "specific" remedies therefor in the "tag you're it" spirit; while before the sick bed, the only medicine which is truly scientific is the Coan or Hippocratic, which sees diseases not as "clinical entities" (*i.e.*, sheer abstractions), but particular cases of altered physiology in different human beings. The patient is the thing; the disease is not an entity but only *aliquid entis*, a fluctuating variable attaching to the thing.

F. H. GARRISON

THE HEALING POWER OF NATURE¹

In the chaos of unrelated facts and conflicting opinions which characterizes post-bellum medicine, there is no trait more salient than the recent tendency to revamp or hark back to sundry theories of the past which had been seemingly forgotten, discarded or discredited as outworn doctrine. It is hardly a "magnificent gesture," as perusal of the volume before us will suggest. Such revivals only bear out the celebrated dictum of Cardinal Newman that people are more easily influenced by types (patterns) than by arguments, and less by ideas, pure reason and love of truth than by prevailing fashions. Thus, where a social group is timorous about changing its folkways, the conservatism, as Elsie Parsons maintains, is due to the primitive fear of unknown or untried conditions; where it reverts to time-honored custom (as Richard Wagner said, "with the greatest possible resolution") the same mental inertia is apparent. It would seem that the human mind is so circumscribed in scope and outlook that it is capable of producing only a limited number of philosophical, scientific, medical, literary, fictional, dramatic or artistic concepts, which, under various deceptive guises, occur and recur through space and time with monotonous regularity. Only music, and its analogue mathematics, have apparently limitless possibilities, but even here the mind will deal only with those it can assimilate or put to practical use. Stuart Mill's apprehension lest the number of viable permutations and combinations of musical sounds be exhausted is not without foundation. Mathematicians (as in Einstein's case) only cultivate such multiple algebras as are useful in physical science.

Of the various pathological theories which have profoundly influenced the medical mind at stated intervals, there is none more cogent, more self-evident, more likely to survive in the end than the ancient Hippocratic doctrine of the healing power of nature. Completely submerged, as it was, during the period of the post-mortem section (Rokitansky, Virchow) and the rise of the bacterial theory of disease, it again arose, Phoenix-like, to demonstrate its tough survival value, when inflammation itself

¹ Die Lehre von der Heilkraft der Natur im Wandel der Zeiten. Von Max Neubergcr. 3 pl., 212 pp., 8°. Stuttgart, F. Enke, 1926.

came to be regarded as a defensive reaction, with antibodies, hormones or phagocytes as agents in the mechanism. Professor Neuburger, most philosophical of living medical historians, traces the ups and downs of this phase of medical doctrine with the calm judicial accuracy and critical insight of the true medical scholar. Sustained and propelled by the gentle movement of his beautiful style, we float over these "desperate seas" of erudition with ease and security, undismayed by the icebergs of Latin citation, which his running commentary disposes of in a way to be "understood of the people." In the sixth book of the Hippocratic treatise on Epidemic Diseases (VI, 5, Littre, V, 314), we read that "Nature heals diseases" or more literally [Certain elements in our] "natures are physicians of diseases." It goes without saying that this doctrine has been supported by all the greater physicians, from Galen, Fernel, Paracelsus and Sydenham to Laennec and Virchow. Opposition to it, as in the case of Sylvius, Brown, Broussais or Gall, was based not unnaturally upon the fact, first stressed by the pathologist Gaub, that along with the defensive reactions of nature, there are direct and fatal repercussions of morbid processes upon the body which call for aggressive and purposeful counter-therapy; or as Robert Boyle put it: "Nature seems to be careful to produce, preserve and cherish things hurtful to the body, as well as things beneficial to it." The *via media* is obviously the safe line for the modern physician. Sometimes he must assist nature; sometimes he must wage a direct, frontal assault upon morbid processes. One of the most striking corollaries of the basic theorem in the Hippocratic Canon is to the effect that quartan fever exerts a beneficial effect upon tetanus (Aph. IV, 57) and epilepsy (Aph. V, 70; Epid. VI, § 6, 5), which has found its avatar in the recent treatment of neurosyphilis by superinfection with malarial or relapsing fever. There could be no more striking example of the breadth and depth of Greek medicine at its best. Those who wish to study these matters in detail will find no more faithful and reliable guide through the maze than Professor Neuburger's exhaustive and scholarly monograph.

F. H. GARRISON

A NOTE ON GIROLAMO SEGATO

In an editorial on Dr. Valentine Mott, published in the Academy BULLETIN,¹ reference was made to the method of petrifying pathological preparations employed by "Signor Segato" at Florence, which intrigued Mott to the extent that, before the sudden demise of Segato, he had arranged to bring the penniless chemist to this country. It appears that much has been written about Segato by Italian savants.² He was born at Vedana (Belluno) on June 13, 1792; was well known in his day as a chemist, cartographer and traveler, and died suddenly of pleurisy at Florence on February 3, 1836, too suddenly, in fact, to communicate the secret process which died with him. He announced his discovery in Vieussieux's Anthology (1831, xlv, no. 12, 74) and, in his Florentine period, seems to have petrified some 300 insects, fish, reptiles and other animals, with about seventy-four anatomical specimens, obtained from the hospital, and to have made a mosaic table of 214 cross-sections of these specimens, obtained by sawing and polishing. After his death, many attempts were made to get at the secret of his method,³ but without avail. In some of the specimens, the process of petrification was not complete and no inferences could be drawn from the chemicals found in his laboratory after his death. The preparations may be seen in the Anatomical Museum at Florence, in the Institute of the History of Science founded by Corsini in the same city, and in the Anatomical Museum at Perugia.

F. H. GARRISON

¹ BULL. N. Y. ACAD. MED., 1925, 2. s., I, 209-214.

² A. Wolinski: *Bull. Soc. geog. ital.*, 1892-3, 3, s., V-VI. A. Corsini: *Riv. d. biblioteche*, 1913, XXIV, Nos. 6-9. L. Castaldi: *Scritti biologici*, Siena, 1926, 101-117, containing pictures of the bust of Segato in the Biblioteca Medica (Florence) and of three specimens of his petrified preparations.

³ F. Cintolesi: *L'imbalsamazione e le scoperte di Girolamo Segato e di Paolo Gorini*. 8°. Firenze, tip. Fioretti, 1873. F. De Colo: *L'imbalsamazione Umana*. 16°. Milano, Hoepli, 1910.

INTERNAL REVENUE ACT

Physician's Opinion as to Whether Patient Believed He Was in Danger of Death at a Given Time

It has become the custom during the past few years for the Internal Revenue Department of the Treasury to send agents to visit physicians in order to ascertain the physician's opinion as to whether a certain patient of his believed he was in danger of death at a given time.

It is commonly known that wealthy individuals give away part of their estate to their wives and children in order to avoid the payment of inheritance taxes, and it is assumed by the Internal Revenue Department that this is done more frequently when the wealthy individual is affected with some disease which may prove fatal.

The Revenue Act of 1926, under Section 1104, states that the Commissioner of Internal Revenue or an Inspector designated by him is authorized to examine any books, papers, records and memoranda, etc. Section 908 of the same act provides that the Board may summon witnesses, produce the necessary books, papers, etc.

On the other hand, Section 352 of the Civil Practice Act of the State of New York provides that: "A person duly authorized to practice physics or surgery . . . shall not be allowed to disclose any information which he acquired in attending a patient in a professional capacity. . . ." The privileges given under this section can be waived under Section 354 of the same act by "the personal representative of the deceased person."

There is no judicial decision on Section 1104 of the Revenue Act of 1926, and in regard to this section the counsel of The New York Academy of Medicine has given the following opinion:

"In my opinion, if the personal representatives of the decedent have waived the right which the Statute has established, the physician can be compelled to submit to examination and to furnish his records.

"It would, therefore, seem to me that, before a physician submits to questioning by a representative of the government, it would be necessary for him to obtain the consent of the personal representative of the decedent. Otherwise

he would be breaching the confidential relationship existing between the physician and patient.

"In the event that the personal representatives of the decedent have not waived the right above mentioned, or the consent of the personal representatives of the decedent is not obtained, it would not, in my opinion, be necessary to furnish the data, or render the opinion requested."

It would, therefore, seem advisable for physicians to secure the consent of a member of the family or an authorized representative of the deceased before giving confidential information to an agent of the United States Internal Revenue Office.

RECENT ACCESSIONS TO THE LIBRARY

- Adler, A. Studie über Minderwertigkeit von Organen.
München, Bergmann, 1927, 92 p.
- Aikens, C. A. The home nurse's handbook of practical nursing.
4. ed.
Philadelphia, Saunders, 1927, 326 p.
- American gynecological club. A diary of its journeyings to
Scandinavia, Scotland and England. Summer of 1926.
New York. Privately printed, 36 p.
- Baldwin, E. R., Petroff, S. A. and Gardner, L. S. Tuberculosis.
Philadelphia, Lea, 1927, 342 p.
- Benedict, F. G. and Ritzman, E. G. The metabolism of the fast-
ing steer.
Washington, Carnegie Inst., 1927, 245 p.
- Bogert, L. J. Chemical laboratory manual.
Philadelphia, Saunders, 1927, 142 p.
- Brown, M. R. Legal psychology.
Indianapolis, Bobbs-Merrill, 1926, 346 p.
- Bulleid, A. A text-book of bacteriology for dental students.
St. Louis, Mosby, 1927, 219 p.
- Bumm, E. Operative Gynäkologie. v. 1.
München, Bergmann, 1926.
- Cawadias, A. P. Diseases of the intestines.
New York, Wood, 1927, 299 p.
- Cowell, E. M. Hernia and hernioplasty.
London, Lewis, 1927, 128 p.

- Delbét, P. and Mendaro. Les cancers du sein.
Paris, Masson, 1927, 343 p.
- Eason, J. Exophthalmic goitre.
Edinburgh, Oliver, 1927, 215 p.
- East, W. N. An introduction to forensic psychiatry in the criminal courts.
London, Churchill, 1927, 381 p.
- Federspiel, M. N. Harelip and cleft palate.
St. Louis, Mosby, 1927, 200 p.
- Gallemaerts, E. Examen microscopique des affections de la cornée au moyen de la lampe à fente.
Paris, Masson, 1926.
- Goddard, H. H. Two souls in one body? A case of dual personality.
New York, Dodd, 1927, 242 p.
- Graff, E. Die Unfruchtbarkeit der Frau.
Wien, Springer, 1926, 100 p.
- Haeberlin, C. Lebensgeschichte und Krankheit.
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- Hartmann, H. Diagnostie des principaux cancers.
Paris, Masson, 1927, 61 p.
- Herrick, C. J. An introduction to neurology. 4. ed.
Philadelphia, Saunders, 1927, 406 p.
- Houstoun, R. A. A treatise on light. 5. ed.
New York, Longmans, 1927, 489 p.
- Hutchison, R. Lectures on dyspepsia. 2. ed.
London, Arnold, 1927, 200 p.
- Irwin, W. K. Urinary surgery. 2. ed.
New York, Wood, 1927, 271 p.
- Jaensch, W. Grundzüge einer Physiologie und Klinik der psychophysischen Persönlichkeit.
Berlin, Springer, 1926, 483 p.
- Kraus, R., Gerlaeh, F. and Schweinberg, F. Lyssa bei Mensch und Tier.
Berlin, Urban, 1926, 464 p.
- Kühn, A. Die Kieselsäure . . . insbesondere bei Tuberkulose, Arteriosklerose, rheumatischen Erkrankungen, Krebs, usw.
Stuttgart, Enke, 1926, 135 p.
- Labbé, M. Le traitement du diabète.
Paris, Masson, 1926, 158 p.

- Laqueur, A. Leitfaden der Diathermiebehandlung.
Berlin, Karger, 1926, 134 p.
- Lehrbuch der technischen Zahnheilkunde. Hrsg. von H. Schröder. 2 vol.
Berlin, Meusser, 1925-27.
- Lejars, F. Explorations clinique. 2. éd.
Paris, Masson, 1927, 911 p.
- Levaditi, C. L'herpès et le zona.
Paris, Masson, 1926, 229 p.
- Leriche, R. and Policard, A. Les problèmes de la physiologie normale et pathologique de l'os.
Paris, Masson, 1926, 229 p.
- Lovell, R. G. Why tuberculosis exists.
London, Bale, 1926, 211 p.
- McFarland, J. Biology. 5. ed.
Philadelphia, Saunders, 1927, 475 p.
- Mandl, F. Die paravertebrale Injektion.
Wien, Springer, 1926, 116 p.
- Medical views on birth control. Ed. by Sir J. Marchant.
London, Hopkinson, 1926, 175 p.
- Mouchet, A. and Tavernier, L. Pathologie des ménisques du genou.
Paris, Masson, 1927, 98 p.
- Nègre, L. and Bouquet, A. Antigénotherapie de la tuberculose.
Paris, Masson, 1927, 158 p.
- Ormsby, O. S. A practical treatise on diseases of the skin.
3. ed.
Philadelphia, Lea, 1927, 1262 p.
- Osterhout, W. J. V. Some fundamental problems of cellular physiology.
New Haven, Yale pr., 1927, 55 p.
- Patten, B. M. The embryology of the pig.
Philadelphia, Blakiston, 1927, 323 p.
- Pawlow, J. P. Die höchste Nerventätigkeit (das Verhalten), von Tieren . . .
München, Bergmann, 1926, 329 p.
- Pedersen, V. C. The woman a man marries.
New York, Doran, 1927, 276 p.
- Polak, J. O. A manual of gynecology. 3. ed.
Philadelphia, Lea, 1927, 402 p.

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The following is a brief legal form as a suggestion under which bequests may be made in behalf of the Academy:

I give, devise and bequeath unto "The New York Academy of Medicine" of the City of New York, State of New York, a corporation duly incorporated by the legislature of the State of New York by an act, entitled "An Act to Incorporate The New York Academy of Medicine," passed June 23, 1851, and amended June 4, 1853, June 2, 1877, and April 24, 1925.

DEATHS OF FELLOWS OF THE ACADEMY

HENRY COGGESHALL, M.D., 40 East 58th Street, New York City; graduated in medicine from Harvard Medical College in 1883; elected a Fellow of the Academy, June 4, 1891; died, May 24, 1927.

ABRAHAM ZINGHER, M.D., 47 West 69th Street, New York City; graduated in medicine from Cornell Medical College in 1908; elected a Fellow of the Academy, February 6, 1913; died, June 4, 1927. Dr. Zingher was a member of the Pathological and Bacteriological Society, a member of the American Public Health Society, a member of the American Immunity Society, and a member of the Society of Associated Alumni of Mt. Sinai Hospital. He was also attending physician to the Willard Parker Hospital.

JEREMIAH FRANCIS CALEF, B.A. Wesleyan Univ., 1877, M.A. Wesleyan Univ., 1880, M.D., Middletown, Connecticut; graduated in medicine from Yale Medical School in 1880; elected a Fellow of the Academy, May 6, 1897; died, June 8, 1927.

LEWIS DUNCAN MASON, M.D., 171 Joralemon Street, Brooklyn, N. Y.; graduated in medicine from Long Island College Hospital in 1866; elected a Fellow of the Academy, May 4, 1882; died, June 11, 1927.

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CONSTITUTION AND CHARACTEROLOGY¹

(CYCLOIDS AND SCHIZOIDS)

From the cab-driver, who sizes up his customers to be "sure of his shilling," to the physician and the artist, who study face and figure from a higher specific viewpoint, the estimation of the appearance of the individual with reference to his ultimate character has ever been a matter of intense human interest. The knowledge most prized by men of the world is knowledge of human nature. "The proper study of mankind is man." The "characters" of Theophrastus, of La Bruyère, of Dickens, all imply a keen *flair* for human oddity. Even the empirical data of physiognomy (Lavater) and phrenology (Gall), as set forth in the ludicrous woodcuts of popular treatises, have merged of late years into physiological concepts which are "scientific" as far as they confer actual power of prediction. There have been great physicians of the past, such as Corvisart, Skoda, Hebra, Joseph Bell, Da Costa, who could usually ticket off the occupations as well as the diseases of their patients at a glance. One of the oldest of these visualizations, the Hippocratic picture of the phthisical habit of body, is cited in Osler's *Practice*. How carefully such details were noted by the elder physicians is well illustrated in Dr. Richard Bright's lecture to his students of 1832:

"By the eye you will learn much; many diseases have the most distinct physiognomy. The sunk and shrivelled features derived from the long-continued disease of the abdominal viscera, the white and bloated countenance often attendant on changes in the functions or structure of the kidney,

¹ Ernst Kretschmer: *Physique and Character*. Transl. by A. J. H. Spratt. London, 1925.

mal" reaction) and are usually temperamental rather than mental. They are ordinarily the cheerful, tough-minded organizers, go-getters, whole-hoggers, Big Boys, Babbitts and Pashas of the business world, as well as its bakers, butchers and innkeepers; in science, the observers, recorders and empirics, in literature and art, the realists and humorists. This type connotes the *sang généreux* of the moon-faced peasant, the broad faces of the Slav, the Finn, the Mongol, the Negro, and corresponds very closely with the digestive type of Chaillou and MacAuliffe. When bald-headed, the eyeloid types are bald all over. They are particularly exposed to arteriosclerosis, gout and rheumatism, goitre, obesity, diabetes and other disorders of metabolism. The schizoids,⁴ on the other hand, are the sharp-featured, thin-bodied, thin-blooded, pale or sallow people, predominantly of mental or nervous type, whose hair tends to grow down the back and whose baldness, where existent, is in patches. They may range in character from the supersensitive idealist of fine feelings ("mimosa type") to the narrow-minded tyrant or cold-blooded criminal, the past-masters of coxcombry or the dry, dull-witted, insipid specimens of affective lameness or psychic blindness. The schizoid group includes the long-haired, spectacled idealists, the ethical and social reformers, the mad monarchs and fanatics of worldly affairs; in science the systematists and theorists; in art and literature the sickly-sentimental romantics as well as the devotees of "classicism" and formal perfection. This group implies such cold-blooded types as the dry pedant, the male shrew and he-old-lady, the supercilious snob and pseudo-aristocrat, the empty-headed social marionette, the miser, the sneak, the intriguer, the double dealer, the smart Aleek, Carlyle's rabid "have-not," the dragon or dragoon of virtue and categorical imperative, the blackmailer, the professional calumniator, the meddlesome *Naseweis*, the spiteful *Spitzbube*, and the

⁴ It has been noted that if the words schizophrène, schizothyme and schizoid had been properly constructed from the Greek roots, they would be schismophrénia, etc., or schistophrénia, etc., as in other medical terms derived from these roots, thus conveying the idea of a schism or schist in the mentality and personality of the individual. The temperament is either the *anima anceps*, the house divided against itself, or the Ishmaelite, at war with his kind and the world at large.

public nuisance generally. At the bottom of all this extraordinary variety of human character lies autism, the inscrutable shut-in or undeveloped mentality, with its implications of frustrated sexuality, childish hatred and hostility to the world (the *praecox complex*). Schizoid characters of this kind are particularly liable to neuroses from basic sexual dysharmony. Kretschmer notes that the devil of tradition and the pale, lanky saint are both of schizoid type. The motto of his book expresses Caesar's preference for the "sleek-headed men and such as sleep o' nights" to the "lean and hungry kind":

"He thinks too much: such men are dangerous."

We may note, in passing, that the effect of environment in producing autism is also indicated in certain lines of Shakespeare:

"Home-keeping youth have ever home-bred wits:
He cannot ever be a perfect man,
Not being tried and tempted in the world."

and of Goethe:

"Es bildet ein Talent sich in der Stille,
Sieh ein Charakter in dem Strom der Welt."

Examples of *cycloid* types are in worldly affairs, Mirabeau, Luther, Bismarck and the heavy-jowled politicians of the 18th century; in science, Humboldt, Darwin, Huxley; in art and letters, Rembrandt, Schumann, Goethe. Examples of schizoid types are such religious leaders as Savonarola or Calvin; such philosophers as Spinoza, Kant, Locke, Stuart Mill; such artists and men of letters as Michael Angelo, Wagner, Pope, Schiller. Kretschmer notes very acutely that, in old times, scholars, scientists and philosophers were of predominantly schizoid type, while to-day the type is overwhelmingly *cycloid*. The explanation is simple, namely, that occupations which imply trained capacity for intensive reasoning now play an important, rewarding part in the larger life of the world and are consequently followed by men who might otherwise have been warriors, bankers and captains of industry. Great soldiers like Caesar, Frederick and Napoleon are, in Kretschmer's view, remarkable mixtures of *cycloid* and schizoid traits. Conflict between an isolated mentality and a hos-

tile environment may induce the psychic equivalents of lyso-phrenia, merging into schizophrenia.

Coming to deviations from the normal, the cyclothymic and schizophrenic misfits are usually, in the Germanic phrase, "cats that walk by themselves." Of the relative harmlessness of the manic-depressives, Kretschmer gives some exquisite examples, *e.g.*, the gay, perpetual chatterbox, whose loud laugh and incessant florid speeches are heard from afar off; or Quick, the breezy, reckless, successful, eternally loquacious business man of loud style and dubious tastes, who, on his mother-in-law's birthday, invades her bed-room at 2 A. M. to present her two sacks of meal and an oil-painting, while, in the street below, a brass-band discourses hymns ("*Das ist der Tag des Herrn*") and potpourris from 6 A. M. to nightfall. Quick himself eventually makes a speech from his balcony to the assembled populace. Committed to an asylum, he is charming, quiet, reasonable, amusing himself with such toys of his invention as brushes and rolls of toilet-paper that play tunes. The ladies (wife and mother-in-law) meanwhile are found "lying on their beds, suffering from nervous prostration"—always the best defensive reaction in such cases. With sundry Americans, a man of this kind might be mistaken for a very redoubtable humorist. An example of the uncertain mental tendencies of schizophrenes would be a servant-maid, pious and otherwise meek as a lamb, who suddenly murders the three children entrusted to her care. It is obvious, as Kretschmer points out, that there is no absolute clinical relation between physique and psyche, since indefinite combinations, such as pyknic physique and schizoid psyche, or *vice versa*, are producible as crosses by marriage between the fat and good-natured and the lean, wiry and nervous (Carlyle's "circle and its tangent"). As stated, a shut-in environment, *e.g.*, that of narrow, exclusive, ingrown family or social (occupational) relations, may produce an autistic mentality. Thus the composer Beethoven, before the advent of his deafness, was of the attractive, sociable, broad-faced pyknic type, as evidenced by such *plein air* music as his earlier symphonies or the *Septet*. Stone-deaf he became autistic. From the *Eroica* onward, his later music usually expresses the idea of a lonely soul contending with adverse fate. His last quartets and piano sonatas are, in Richard Wagner's phrase, "a voice from

another world," sometimes unintelligible and almost unplayable. Yet all his life, Beethoven, like most pyknics, was a first-rate business man. Again, Kretschmer's theory seems vitiated to some extent by the vagaries of ethnic psychology.⁵ The clock-faced Mongolian, for instance, is usually amiable, sociable and the reverse of autistic; yet his mental processes, as with most Orientals, remain inscrutable. The view of Nordics as schizoid, of Alpines as cycloid, has some fallacies. With these reservations, however, we may accept Kretschmer's view that while physique and psyche connote nothing absolute about each other, physical habitus, facies, mentality and hereditary tendency to disease are really the basic elements of the constitution of the individual with reference to the development of his character, in other words, his reactions to environment. The modern *plein air* education of children is significant as a reaction against the domestic autisms of the past. Formerly the psychiatrist studied only diseases of the brain. Now he studies the effect of endocrine and other chemical phases of the constitution upon the workings of the mind.

F. H. GARRISON

SYMPOSIUM: THE EVOLUTION OF MIND

THE BRAIN OF PREHISTORIC MAN

FREDERICK TILNEY

(Delivered before The New York Academy of Medicine, April 7, 1927.)

I feel very reluctant to speak here this evening, especially in the presence of the greatest living authority on all matters prehistoric, but inasmuch as it was Professor Osborn himself who requested me to make this study of the brain I shall depend on his indulgence and goodness to correct any discrepancies I may make.

It is evident from listening to the staggering figures you have just heard about the antiquity of man that the most conservative

⁵ For a brilliant exposition of this phase, see L. F. Clauss: *Rasse und Seele*, Munich, 1926.

estimate places the origin of our race back about 500,000 years. Professor Osborn has taken the dawn of mankind back four million years, and Sir Arthur Keith in his famous work on the "Antiquity of Man" triples this figure when he says that there is nothing known to him which would prevent the appearance of human form in the Mioocene. This estimate takes the time of human origin back fifteen million years.

During all this vast era of geological time, this almost incomprehensible era, with its many changes in climate, its recurrent glaciations and long periods of warmth between, man's brain steadily grew. At first this growth was very slow and hesitating; later it became so decisive as to make cerebral development one of the most conspicuous, if not the most conspicuous, feature in human evolution.

From his earliest beginning man's brain has not only grown in volume, but it has acquired much refinement in many of its structural details. Its newer parts especially have become more highly specialized until finally the brain of modern man is a far more efficient organ than that possessed by any of our prehistoric human antecedents. It is probable that a large number and variety of prehistoric men have inhabited the earth at different times. Several different races of these people have already been identified by the means of fossilized human bones. The racial characters and the racial differences established in this manner have been utilized to reconstruct, in so far as possible, some semblance of the outward appearance of these prehistoric peoples who have long ago departed. In the reconstruction by Professor MacGregor, of Columbia, the differences between these various people is most striking.

The Simian appearance of the *Pithecanthropus erectus* affords good reasons for calling this earliest known member of our family circle the *ape-man*. The old man of Cro-magnon has a noble countenance which entitled him by itself to be called, as he has been called, the Paleolithic Greek. Between these two extremes the Piltdown man and the Neanderthal man are obviously intermediate stages. How these very ancient people thought and felt and lived is a matter of extreme importance to the fullest understanding of human nature; what the brain has to reveal concerning these matters is still more significant in relation to the cul-

tural possibilities of humanity. It offers an opportunity to study the psychologic foundations of human progress. In the light of contemporaneous exploits and advancements, in the light of history, it is essential to assume the existence of some specific power which distinguishes man among all living things. If we could visualize him toiling upward over his long way, through all this great number of years, we would see him beginning at his lowest level, perhaps four million years or more ago, as Pithecanthropus and then ascending successively as Heidelberg, Piltown, and Neanderthal man. Finally, as Cro-magnon, he reaches the high plateau from which he looks out upon the world for the first time as *homo sapiens*. During all this long and laborious ascent, through all this long time he has gradually been acquiring the distinctive human power which has been called by so many names—that surpassing endowment which Professor Osborn believes came to him at last when he stood up in the dawn of his Cro-magnon manhood and drew upon the walls of his cave the first imperishable record of his greatness.

The acquisition of this great human power is the story which the prehistoric brain has to tell. It is not known in all its aspects or all its phases, but some of it seems clear. In order to get any idea of what the prehistoric brain was like, it is necessary to depend upon certain circumstantial evidence. This admission may seem to put the case in its most unfavorable light at the outset, but the fact remains that the brain of man like other soft parts of his body disappeared. It has not disappeared, however, entirely, because it has left certain impressions upon fossilized bones of the cranium which have been discovered and traced back to the oldest known races of man. Of course, there is some question as to the value to be attributed to these impressions on fossilized bones. Professor Symington, who has studied the subject most extensively by means of endocranial casts, is extremely cautious in the matter. He prefers to acknowledge the limit of our understanding at present and not to draw too extensive conclusions. Still, notwithstanding this caution, there are certain impressions and certain ridges on these fossilized bones of the skull which must be accepted as landmarks of utmost importance in determining brain areas of functional localization.

The first or lowest of the human family is the Pithecanthropus erectus. An antiquity of at least 500,000 years has been at-

weight it is really a brain which was much inferior to the modern human brain simply because it had an imperfect development in certain important details. In the frontal region there is a marked concavity which disappears as the brain of the *homo sapiens* is reached. In other respects also, particularly in the frontal region, the brain of the Neanderthal man is very much less developed than is the case of the higher races.

In studying the localization of this brain of Neanderthal man it becomes apparent that the speech centers are well developed, so also are the auditory centers, but the whole frontal region is flatter than what is seen in the *homo sapiens*. The brain is a better brain than that of the Piltdown or ape-man. These people show this improvement in the record which they have left both in the construction of flints and also in the industries with which they are now generally accredited.

Europe and Asia have contributed evidence of prehistoric man, the former in abundance, but it is only recently, 1921, that Africa gave any sign that primitive men had gone into that country. The Rhodesian brain is part of this new evidence. It was discovered by Mr. Harris at the Broken Hill Mine in Northern Rhodesia and found under such circumstances as to justify its inclusion among prehistoric brains. When I first began to study this brain it seemed to me that it should be classed among modern brains, but on closer scrutiny it appears very definitely to be inferior in its general construction to the Neanderthal brain. I am now inclined to believe that Elliot Smith is perfectly correct in saying this is a strangely "exotic cousin in our family circle" which dates back as far at least as the Piltdown race.

The first great experimental period in human evolution was drawing to a close when the Cro-magnon race made its appearance in Western Europe. These Cro-magnon people were remarkable because they were the first representatives of *homo sapiens*. They have been called the Paleolithic Greeks and undoubtedly deserve that name. Their entire history is made brilliant by their artistic achievements. They probably had devised some form of music, but it was in their carving and drawing of animal forms that their art reached its real heights. Many species of living and extinct mammals, birds and fish have thus been immortalized. The actual specimen of a Cro-magnon brain is not

yet available for study. There is an endocranial brain cast, however, by means of which we can draw certain analogies. This brain cast was obtained from certain Solutrean contemporaries of the Cro-magnon race. It belonged to the Great Mammouth Hunters of Predmost, who had much in common with the Cro-magnon. One of these Predmost brains, of which there are four or five well-made casts, shows that here at last the level *homo sapiens* has been finally reached.

The process of evolution through which the brain has passed in all of its various stages seems to be clearly shown by certain measurements and indices. Starting with Pithecanthropus and proceeding to *homo sapiens*, there is a definite increase in the width of the brain, that is to say, the cerebrum was expanding in those areas which had to do with sensation and more particularly with sensation of the hands and fingers. In its length a similar and even more striking increase in size is notable. This is due to the fact that the frontal lobe was developing, that part of the brain which has to do with the higher faculties, with reason and judgment, personality and experience. It is exactly here that the increase might be expected in the evolution of the human brain. The height of the brain also shows a similar increase.

The Cro-magnon, after his day, made way for a new race of men who came into Western Europe, Neolithic Man. This newcomer created a great change in human activities. He introduced a period of practical utilities; applied science was substituted for pictorial magic. Neolithic man had discovered the magic of agriculture. He may have prayed for his crops, but he also planted seed and tilled the soil. He may have had certain propitiatory rights for his hunting expeditions just as the Cro-magnon undoubtedly did, but he domesticated animals to guarantee an assured food supply. As herdsman and farmer he became a landholder, and this was a long and provocative step in the direction of modern humanity. It forced upon man the need to defend his claim and assert his right. Quickly this new assertedness extended itself to the ages of bronze and iron, with their much more rugged offensive mechanisms, and ultimately having extended itself into historical times, it proceeded to create all of the armed camps known to civilization, ancient, medieval and modern.

There can be little doubt that the progress of humanity has run parallel with the growth of the brain. From one age to another and from one race to the next man has shown a steady gain in his power to control material conditions. Where he has stood still, or perhaps even fallen behind, is in learning to control his own nature. The human cerebrum certainly marks the advances of intelligence step by step. When the brains of all of the prehistoric men which we know are placed side by side, including Pithecanthropus and Piltown, Rhodesian, Neanderthal, Predmost and *homo sapiens*, there is not a question of doubt about this progress. Such progress in development is sufficient to convince the most skeptical. And yet for the most part the human cerebrum is looked upon as the finished product. Its evolutionary history does not bear out this view. It makes it seem much more probable that the brain of modern man is an intermediate stage in the ultimate differentiation of the master organ of life. In this sense the prehistoric brain is of more than antiquarian interest. It has a definite and living bearing upon the future progress of the race.

DR. CLARK. The discussion and exposition of Dr. Tilney will be continued in somewhat different and yet analogous relationship to the subject of the evening by Dr. White, of Washington.

Dr. White presented his prepared paper.

THE CONCEPT OF EVOLUTION AS APPLIED TO THE HUMAN MIND

WILLIAM A. WHITE, Washington

(Delivered before The New York Academy of Medicine, April 7, 1927.)

The subject of this symposium, The Evolution of Mind, suggests, at least, that there is a something to which the term mind is properly applicable and that this something undergoes, or has undergone, a process of change to which the term evolution may be applied.

It is perhaps unnecessary to remind this audience of the inherent difficulty that would confront one in any undertaking adequately to define mind nor to remind you that, not so long

ago, its consideration was from the standpoints of philosophy and morals. In other words, psychology, or the science of mind, has only lately become scientific, and only very recently been recognized as a biological science. I may further remind you that, not so long ago, psychology was dealing with faculties like the will and the intellect, that this manner of speaking and even this way of thinking are still with us, and that the behaviorist would rule consciousness out of consideration altogether, to indicate further the difficulty of definition mentioned not to say, also, the implication of radical changes, evolutive or otherwise, if not in mind itself at least in our conceptions regarding it.

My own point of view is that mind, as such, is indefinable in quite the same sense as are other ultimates, for example, energy, gravitation, electricity. We know something about what these so-called forces do, we know them by their effects, but we do not know the nature of the ultimate reality behind these effects; we do, however, give it a name. From this point of view it may be properly asked, What is the character of the activities back of which we postulate mind? My answer to this is that they are total reactions. When an organism as an integrated whole does something, as for example, when a lion seizes its prey, or when an amoeba engulfs a food particle, we can only describe such an act in psychological terms, and it is such acts, therefore, that we consider as emanating from what we are pleased to term a mind.

If this concept of mind, as I have stated it, is correct, it is at least mind as I conceive it, then the deduction is implicit that mind is an attribute of all living beings, at least for our purposes of all animals, inasmuch as they all exhibit total reactions in the sense indicated, reactions to which only descriptive terms that are psychological can be applied and which are purposive in character. Mind, therefore, becomes an attribute of the living being, one attribute among many and is no longer to be considered as a separate something, or mystical entity that is somehow associated with or engrafted upon the organism such as is implied in the faculty psychology or the parallelistic theory of the interaction of body and mind. Such being the case, I think we might expect to find, and as a matter of fact I think we do find, that the evolution of mind, of total reactions, is expressed as but one aspect of evolution in general.

From this point of view it will be seen that mind is so involved as an expression of the organism that any consideration of its evolution needs to be envisaged by the principles underlying the process of evolution in general, as it involves all living things and that it may not be considered apart. Evolution of mind, therefore, must be considered in connection and not apart from evolution of body. Psyche and soma are but different aspects of the organism as an evolving system.

It is true that we have been accustomed to think of evolution in the past as expressing itself in morphology. In speaking of an evolution of mind I am applying the evolution concept to a system of functions. But function is a matter worthy of consideration in its own right and its modifications, its development and evolution may be studied and recorded with the same propriety that we may study and record the changes in structure of the skeleton, and it may be said with results that have the same degree of probability.

The tendency to study function in quite the same way as is the practice to study structure seems to me to be an important one to recognize in the field of biology because, although it has not been definitely formulated as a methodological principle, it would seem that psychoanalytic investigations of recent years have been in effect an effort to study the development of the psyche in the individual and as a result of this study to develop a natural history of the psyche.

One of the reasons why the mind appears to have resisted so long the application of scientific methods would seem to be because it is intangible, invisible, and imponderable. I think these reasons need no longer stand in the way. Scientific method is as well served by a natural history of any given function as by the natural history of the honey bee or of the continent of Australia.

The implication of all this is that the human mind as we ordinarily know it in ourselves and contact with it in our fellows is an end result, the beginnings of which reach back to the beginnings of life, and that consciousness is the last link in a chain that reaches for millions of years into the dim distant past.

The study and the understanding of mind have been much hampered by failure to appreciate these facts and by a type of

consideration that treated mind as a sort of imponderable, intangible, mystical entity without structure in the sense that we ordinarily think of structure in terms of organic make-up. If we can only put aside this prejudice and consider mind as we do the tangible body, think of its content as its structure and its processes as its functions, then we shall begin to see that we are confronted with problems regarding its evolution that are quite the same in kind as the problems of the evolution of somatic structure and function.

What are the sciences that have led us to our knowledge of organic evolution? They are comparative anatomy, embryology, and paleontology, and they have their counterparts in the realm of mind so long as we keep in mind the concept of total reactions rather than the concept of consciousness. The present understanding of mind is reached from a study of its development in the individual, its development throughout the course of man's recorded history, and the recognition of archaic rests that we find in the excavations made in individual minds by mental disease.

In this way we have come to a new understanding and evaluation of the child mind by recognizing that the relatively smooth and plastic child psyche is not the battle ground of the old time faculties but is more like the undifferentiated protoplasm of the amoeba, which only after long experience is to be organized into well-differentiated functional pathways. This relative simplicity is of course only our way of thinking about it; it only appears more simple, for it after all contains all of the potentialities later to be realized but in a form much less understandable, more mysterious, than in the later developed and more specific forms. We have come to see the analogies between these ways of thinking of the child and the ways of thinking of the savage, the primitive man; and we have come to a recognition of archaic material as it occasionally throws up both from a study of psychological reactions as such and also from a study of the functions of the developing and evolving nervous structures that underlie their manifestations and which furnish the pathways along which psychic reactions must find expression.

The study of the evolution of mind, therefore, must include the results of the comparative study of the development of the structures and functions of the somatic structures, principally, but

not alone; of the nervous system; the study of man himself in his march from the primitive stone age to civilization, his art, literature, religion, economic and political institutions; the psychology of primitive man and savages such as are at present living, of their customs, beliefs and institutions; the psychology of the child; and the psychology of the adult both normal and pathological. Along this way there are many special problems and many hiatuses. For example, the psychology of the special senses considered from the broad phylogenetic point of view is a special problem, and the psychology of the child before birth is a hiatus of probably considerable importance, for when we are born we are already far along on the path that begins with impregnation and ends with death, and a consideration of this intrauterine period might throw much light on the distinction between what is inherited and what acquired, about which we know so little. Another special problem is animal psychology which has been seriously attacked in the recent studies of apes; and another hiatus is our almost total lack of knowledge of the representation in the psyche of the various bodily organs, a representation that must be of the highest significance in the understanding of total reactions. The relation between emotion and adrenalin is an example in its simplest form, as is the possibility of the relation of a certain pathology of the pancreas and the sugar metabolism machinery to epilepsy, in which there are such tremendous explosions of affect.

The mind in evolution expresses itself at all these various levels or stages of development which we see fixed in the animal, the savage, the child and the adult, and the various components ontogenetic and phylogenetic, hereditary and acquired are woven into the final result in the complex plan that reaches its final expression in consciousness.

In the progress of evolution the processes of analysis and synthesis go hand in hand. Just as the undifferentiated protoplasm of the amoeba performs all the functions of ingestion, digestion and egestion, which later are elaborated in the forms of the special organs of the digestive system by the more complete analysis of the components of the more general functions of nutrition, and are at the same time integrated and brought together in separate organs for specific purposes, so the undifferentiated

psyche pursues a similar course from massive reactions to crudely analyzed stimuli, to a more detailed analysis of stimuli by the sense organs, and to more specific responses and at the same time a more elaborate integration in the various special fields. The irreversible process of evolution tends to carry these integrations to ever higher levels.

The phenomena of the evolution of mind have been described in their later stages as a change from feeling, concreteness, and perception in the direction of reasoning, differentiation, and abstraction. These changes together with the simultaneous changes in the directions of both analysis and synthesis can be advantageously illustrated at this point. I will use the growth of the concept of number. Originally a number was attached to some concrete object or objects and was a part of the global perception upon the basis of which the individual reacted. Two canoes were two canoes and tended to remain so. The two and the canoes were relatively inseparable or at least separable only under special circumstances. Analysis moves in the direction of separating these components and at the same time, because each comes to be considered, so to speak, in pure culture, a much more comprehensive synthesis of each is built up, so that two and canoes come in the course of time to have a much broader and deeper significance. Number, to take only one of the elements, emerges from this transaction in a highly abstract form with almost no suggestion left that it ever referred to specific objects; the movement can easily be seen to be away from perception and by a process of differentiation in the direction of intellectualization in the form of abstraction.

Such are the processes at work in the evolution of mind. The most significant thing about them is not their uniqueness but the fact that they are just the processes that we find throughout the manifestations of evolution in whatever realm we may examine them. However, there is something significant about their statement which should be emphasized. In the first place the fact that we find the same processes at work in the realm of mind that we find elsewhere is really of great importance, for we are by no means free from the mystical attitude toward the phenomena of mind which the scientific methods of the nineteenth century were not able to dispel. Mind still, for some reason, perhaps because

it is our last stronghold, appears different from the other phenomena of nature.

Secondly, and this will further illustrate the nature of the processes and disclose a component I have already mentioned but which is rarely appreciated, these processes disclose certain aspects of man's relation to his environment which are of importance. When a psychotic patient complains that he is the subject of strange influences that emanate from others he is resorting to a magical explanation of his feelings, and we coordinate his way of thinking with that of primitive man and the child at a stage of development at which they had not succeeded in adequately differentiating themselves from the outside world and so felt the forces of that world as an intimate part of themselves. The stage of animism. This is a phenomenon we are familiar with. I think of many illustrations in the realm of art. For example, we can trace the oriental features of the arch as a structural unit as we see it employed in Rome many hundreds of years after its original use.

Apropos of this relationship to man and his world it has been customary in certain quarters to equate these experiences. First, when man had to give up the idea that he was the center of the universe as a result of the overthrow of the Ptolemaic astronomy. Second, when he had to give up his idea that he occupied a unique position in the world of creation as a result of the "Origin of the Species." And third, when he had to give up the conviction that his individual personality was a unique possession which made him different and separate from all others and over which he had full control as a result of the psychoanalytic principles. In other words, man has gradually had to give up the idea of his own uniqueness. This progressive contraction of his importance in the universe and therefore the lessened influence which he has upon it or can make it have upon him (propitiation of the Gods and vengeance of the Gods) goes hand in hand with an expansion, corresponding in degree, of his detailed knowledge both of the universe and of himself, and, in consequence, of his real position in the universe. In other words, here we have an excellent example of the parallel progress of the two opposites, analysis and synthesis. Therefore the progress from perception to abstraction, for example, only expresses half the truth, for abstraction in-

creases the accuracy of perception; in other words, these other processes also go along together as paired opposites, to my mind, an important aspect of the process of evolution as a whole.

No department of science illustrates any better than psychology the importance of a four dimensional consideration, the need of utilizing the temporal coordinate. Yet no department of science has been more loath to go the whole way in this direction, no doubt because of our crude ideas of the intangible and imponderable mind. The developments in modern physics ought to help us to escape from these hindrances and to realize that if we will not be obsessed by a feeling of mysticism, but will proceed just as we would in the study of any other living thing, we will find here as we have already found there that the present depends upon and expresses the past in a very real sense, and as for the future, why that is the Great Adventure. For the future is the region of the unpredictable. Into it enter elements with which we are unfamiliar and the results of their actions cannot be known beforehand. Every emergence into a new set of conditions with a broader horizon of possibilities involves the unknown and the unpredictable. This does not mean that a legitimate conclusion from unpredictability is indeterminism. There is no warrant for such a conclusion. It does mean that determinism seems only to be applicable to lower orders, never to the highest. Science, by endeavoring to explain the higher by the lower, has created pseudo-problems such as the body-mind problem. Our new synthetic and dynamic point of view would reverse the process. Surely quite as legitimate and, also, a quite worth while undertaking with possibilities of greatest importance, I believe. It is because of the unpredictability of the emergent state, of the impossibility of explaining the higher by the lower, that our material progress has so outstripped our methods of personal relations. We must learn to re-evaluate our lives, to control the lower for the service of the higher and to study the emotions and apply our knowledge of these as successfully as we have the intellectual processes.

This adequate understanding of man's place in nature is of first importance for understanding the evolution of mind, the outward manifestations of which we call civilization. So long as man remained in the animistic stage, still part and parcel in his

feelings of the outward universe, he was completely subjected to it at the pleasure of the gods whom he could only influence by propitiation. It was essential to differentiate himself from the rest of the universe in order that he might efficiently relate himself to it. Unfortunately this process is such an exceedingly slow one, the cultural lag is so great, that upon this one factor alone it is conceivable that the whole future of our civilization may hang. The thinking of the great majority of people is shot through with evidences that clearly ally it with that of primitive man, and yet we are trying to maintain a civilization in which such thinking, if it could ever become controlling, would be absolutely destructive. The immediate problem of the future is to make the things we already know function in our living, not to think in the twentieth century and live in the seventeenth.

Let me close with a story, a hope, and a speculation. Sometime ago, when the requirements under a new law made it necessary to re-examine chauffeurs before re-issuing licenses to them, a young man was found who was engaged daily in running a large commercial truck. This truck he took from the garage each morning, made the required trip each day, and brought it back in the evening. Apparently he fulfilled his duties in a perfectly efficient and satisfactory manner. An examination, however, of this 'boy' disclosed the astounding fact that he did not know that in order to make the truck go it was necessary to supply it with gasoline. I tell this story because it appeals to me as illustrative of certain, at least alleged, attributes of our present day and age. I think it is generally believed that during the recent scientific era of development there has been an enormous evolution of man's environment without a corresponding degree of evolution in his mental capacity. I suppose most of us manipulate many of the inventions which are in daily use with very little more information about their intrinsic mechanisms than the chauffeur who did not know gasoline was needed to make his truck go. And like the chauffeur we get along nicely most of the time. It is only when things go wrong that the great hiatus between our knowledge and the marvellous mechanisms which we control is disclosed. Should the truck run out of gasoline the capacity for adjustment of the chauffeur to the situation thus created would probably be zero. Is it possible that this illustration has an ele-

ment of truth in it for our existing civilization? Is this civilization like the motor truck, and is it being run by an intelligence which has dangerous lacunae so that satisfactory results can only be counted upon when no unusual element is introduced into the picture?

If there is reason to believe that man's mental development as a whole has not kept up with the increase in the complexity of his environment, then it is the hope of the mental hygienist that the present—the twentieth century—which has started off during its first quarter with such an apparent awakening of man's interest in himself and in his mind, may be as significant for the future as were the early beginnings of the scientific era as represented by Copernicus, Galileo, Newton and Bacon, who developed those fundamental laws of our physical surroundings which are now in every school text-book, and those methods of approaching scientific problems which are so important to their utilization.

If there is this great discrepancy between man's knowledge of himself and his knowledge of his environment, and if as a result civilization is really in any serious danger, then it is perhaps worth while in closing to call attention to one aspect of mental phenomena which would seem to have outstanding significance.

In our psychotherapeutic work we have come to a realization that the mind can accomplish what on the face of it seems to be impossible. A mind that is in conflict with itself, that is torn between two diametrically opposed and divergent motives can, under favorable circumstances, bring to pass a solution of this apparent *impasse*. A simple illustration will give you some idea of what I mean. A woman had what we call an ambivalent attitude toward her daughter. She both loved her inordinately and hated her roundly. On some days she could not do enough for her. On other days she could not do enough against her. The swing of her emotional relationship towards her daughter was equal and in opposite directions. It is very interesting how this woman attempted to solve this problem of these opposing tendencies when she came to make her will. She was possessed of some considerable property, and in her will she left it all to the daughter she loved, but she so tied it up in a trust that the daughter whom she hated could never get it in her lifetime.

In some subtle way the human mind has this capacity for resolving opposites, for bringing a solution out of a situation

where solution seems impossible, something after the Hegelian formula—thesis, anti-thesis, synthesis. This ability of the human mind has not been sufficiently recognized nor its importance sufficiently stressed.

When out of opposing forces a new synthesis comes about, this synthesis is an emergent in the sense which I have indicated in referring to the theory of emergent evolution. And perhaps, too, it has the elements of a mutant. In any case a problem, because it seems insoluble, because the forces on either side appear to be arrayed with absolutely equal power one against the other, need not, for that reason, discourage us. The mind has its way of overcoming such difficulties. It is true that it does not always succeed. We see in our patients who reach *impasses* of one sort and another that some of them fail in the ordinary sense in which that term is used; some of them fail by developing a psychosis; both of these failures are partial failures. Others fail completely and commit suicide. But in the great number of people who do not fail in these ways a mechanism has been brought into operation which solves the problem by a synthesis of the opposing forces. So with regard to the present situation this may be the outcome if the facts are as assumed. The outcome may, however, on the other hand, be postponed until a sufficient tension is created between the opposing forces. In any case the mental hygienist looks forth hopefully into the future because he does believe that a degree of interest of mankind in himself has been developed during the present century that is far greater than ever before, and he may perhaps be excused if in this new field of endeavor where there is so much of mystery he indulges some in speculation.

FUNDAMENTAL DISCOVERIES OF THE LAST DECADE IN HUMAN EVOLUTION¹

HENRY FAIRFIELD OSBORN

(Delivered before The New York Academy of Medicine, April 7, 1927.)

It is interesting to recall that when I first came to New York nearly thirty-five years ago I was invited to give the Cartwright lectures before The Academy of Medicine, and that I chose as my subject for one of the course of four lectures "The Contemporary Evolution of Man." That was in the year 1892, and since that time I have been deeply interested in this, to my mind, supreme subject of the whole problem of evolution. As man is crowned king of the rest of the animal kingdom, the evolution of man is certainly a matter of supreme interest. The greater part of the attention of anatomists has heretofore been directed toward the bodily evolution of man, and most of the triumphs of discovery resulted in the placing in past time of one after another of our human ancestors represented by more or less complete remains. But of late the subject has taken a new and very important turn in the examination of the brain structure and the mental powers of these men and women—for we also have women, like the Gibraltar woman—their art and their industry, so that the question now bears directly upon the subject announced by your Chairman as the first of these discourses.

In the time which I have set for this brief introductory address, I shall endeavor simply to lay down, without giving any evidence at all, what I conceive to be the most fundamental discoveries especially of the last decade: First, the very great antiquity of man or of the human race. As our conception of the antiquity and extension of the universe has been broadened and widened through the marvelous discoveries in astronomy during the last decade, so our conception of the antiquity of man, based not on theoretic considerations, but upon actual discovery, has been greatly broadened and the early date for the antiquity of man has been extended hundreds of thousands of years. The first

¹ Compare Osborn: *Recent Discoveries Relating to the Origin and Antiquity of Man*. Address before American Philosophical Society, April 28, 1927, on the occasion of the celebration of the two hundredth anniversary of its foundation.

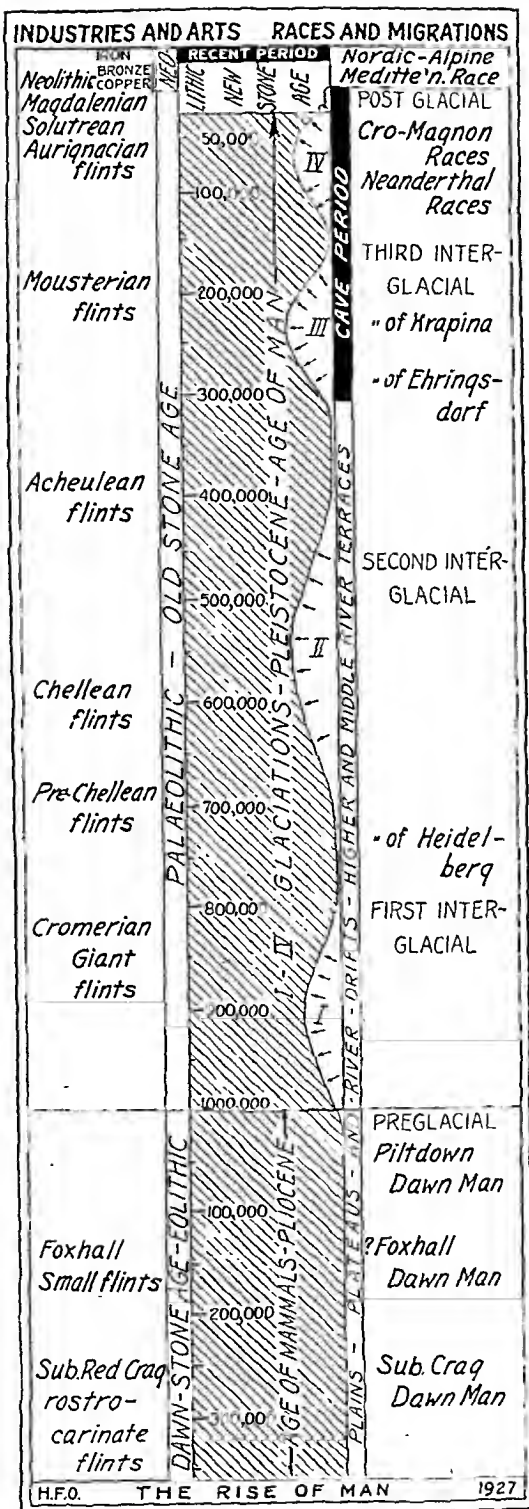
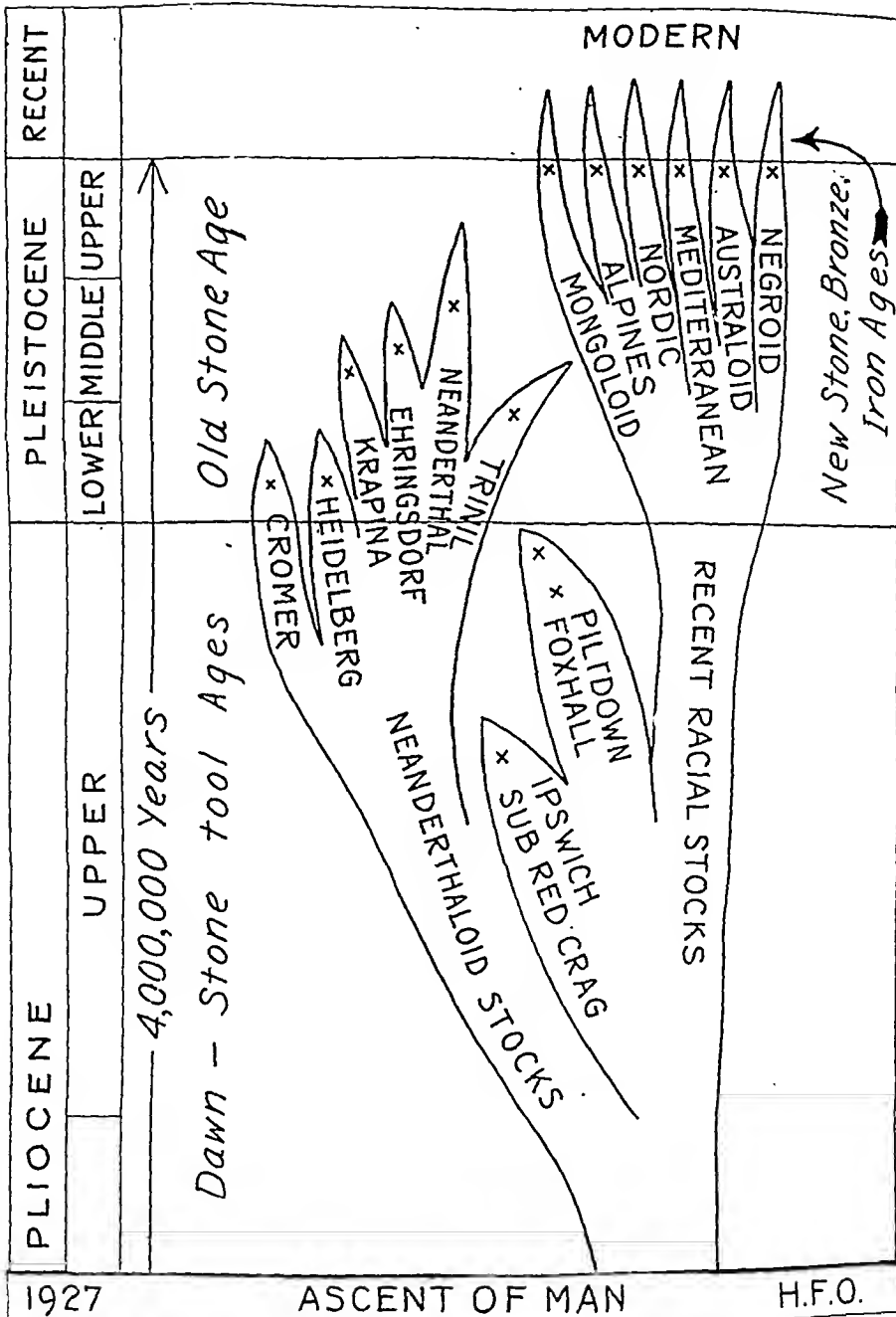


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man discovered was Neanderthal man, who can be assigned approximately a date of 600,000 years. That has been pushed backwards until now we have the geological date for man at the very beginning of the Age of Man, and we regard the so-called Heidelberg race as an ancestor more remote than the Neanderthal race, with an antiquity of one million years. Still more recently we have traced man back of the Age of Man into the Age of Mammals or Tertiary period and have discovered no less than four cases of the occurrence of the human race during the Age of Mammals—not a very primitive form of the human race either.

I have taken special pains in my preparation for this discourse this evening to inquire as to the probable date to be assigned to the Piltdown race found in Sussex, England, and I think I may state positively that the Piltdown race belongs close to the Age of Mammals and may be assigned with considerable confidence an antiquity of 1,250,000 years. That race we know as *Eoanthropus*. The brain of the Piltdown man has a cubic capacity of 1240 ccm., which is larger than the average of some existing races. Consequently, we have evidence of the existence of man with a considerable degree of mentality 1,250,000 years ago. In East Anglia, on the eastern coast of England, have been discovered not the remains of the skull, but the remains of the implements of two races, the Foxhall and the so-called sub-Red Crag races, which are still more ancient than the Piltdown, or well down into the Tertiary period or Age of Mammals.

That age is known only by the flint implements produced. Now, we look at those crude flint implements and at first think it does not require a very high order of intelligence to fashion them. But try, yourselves, to make one of these implements out of a rude boulder of flint; you will find that you are up against a very difficult mechanical and technical problem. The distinguished archeologist, J. Reid Moir, of Ipswich, who has practised flint-making for years, is unable to produce a flint of the beak-keeled type comparable to those fashioned by these men. These flints indicate considerable dexterity, also that the human hand of that period was as capable as the human hand of to-day; they indicate a mind controlling the hand and directing it, almost as capable as the modern mind, so far as mechanical design and purpose



1927

ASCENT OF MAN

H.F.O.

are concerned; they also indicate a variety of occupations—that these men engaged in the chase, that they fashioned wood as well as flint, that they knew the art of fire (which the great poet Aeschylus told us was the gift of Prometheus to the human race), one of the great discoveries in the prehistory of man. Besides fire they undoubtedly had clothing, because certain of these flints were for the purpose of dressing hides.

Amazed as we are by this recent discovery, there are still other discoveries which I am not at liberty to announce this evening, carrying the tool-making period of man back into Middle Pliocene time and thus giving the human race an antiquity ten times the original estimate, or in the neighborhood of four million years—an almost incredible antiquity, certainly absolutely incredible from the standpoint of our knowledge of twenty years ago. We find Tertiary man not a low-grade animal half way between the ape and the modern type, but a man standing erect, with full control of his faculties, with a social system developed, with powers of travel, of exploration, of enterprise, and with ability to direct his mind and will against his contemporary animal enemies, also with a brain and with a well-developed frontal skull region.

The second interesting point, therefore, and a comparatively novel one, is the separation of man from the apes, because our literature, our stage, our movies, and our comic papers are all still full of the old ape-myth, as I call it. Science has its myths as well as Religion. I have myself seen an anthropologist before a great audience of the sociologists of the world in the University of Cambridge run up a line of animals all placed erect, in which he began with the low type of monkey, gradually ascending through the various types of anthropoid apes—the orang, chimpanzee, gorilla, gibbon—and finally reaching the human stage.

To-day we know through another line of research and by actual observation of the living apes of Africa during the explorations of Akeley that the apes are essentially arboreal animals and essentially quadrupedal when on the ground. Although they have many strong points of likeness to ourselves, the apes have been arboreal and quadrupedal on the ground for an enormous period of time, while man during the same period has been erect and has been compelled, by non-recourse to trees for pur-

poses of defense, to use his hands, to develop implements, and to develop his courage and powers of resistance in overcoming difficulties. Thus all the higher feelings and moral traits characterizing the finer primitive races of man to-day are of great antiquity.

Moreover, man has a peculiar habit, namely, the habit of the free use of his hands. This brings us to our next subject, that is, the relation of the development of the hands to the development of the human mind. The tool-making habit we may confidently assign to a period much greater than 4,000,000 years, because tool-making required long antecedent periods of invention, discovery of new types and new uses for tools; there were new human needs to be met, and possibly the fashioning of ornaments used in the social life of man. Thus, during the long tool-making period of a wood age, then of a bone age, then of a stone age, and finally of a metal age, ending with the introduction of bronze, of copper, of iron, and finally of steel, we find that man's mental development progressed step by step with his inventions.

What powers may we grant to these primitive men? In the first place, I think we may say that since they were social animals all the fundamental moral traits and social traits which we possess to-day were developed during that period. Mutual helpfulness and cleanliness brought groups of men to work together to accomplish certain purposes, among them the care and protection of the family. Many existing uncivilized human races show certain of the qualities which we should call high moral traits; few human races show all of them, but they are scattered here and there and we may be sure that the same was true of the races of the early period of human history.

Thus we come to the higher side of man—the intellectual and spiritual side and the artistic. And here we enter into what is to my mind the most difficult field in the whole realm of biology, because we are entirely at a loss to give any adequate explanation. We can only look at the facts as they are. Let me digress a moment. Speaking before this audience of wide reading and culture, I may briefly allude to three great lines of thought with regard to the upward steps of evolution, including, of course, human evolution. The first, as old as Empedocles, 600 B. C., was

the *trial and error* theory, the experimental method which started with Empedocles and culminated with Charles Darwin and Weismann—namely, that by the survival of the fittest in mind and intellect the human mind might be built up.

The second great line of thought we may call the *experiential*, the idea of inherited experience. This, of course, you recognize as the line of thought of Lamarek, culminating in the great work of Herbert Spence. That, too, while considered a great factor in its day, has been found wanting. We do not live on inherited experience or individual experience. We live through the advantage given by inborn faculties and predisposition which happen to coincide and help us in a particular form of environment.

Finally, we come to the third great idea, which was voiced by Aristotle in discussing the question of human evolution, 300 B. C. He calls it the principle of law, more recently known as the *creative principle*. This creative principle is adaptive, and the only word we can use not to be construed in a theological or religious sense but in a purely scientific sense implies the origin of powers and faculties, like the origin of certain physical powers in the human body, without antecedent experience and without antecedent trial or error. The culmination of years of research on my part and the part of others devoted to this specific problem has brought us to the view we must accept: we must modify the original idea of evolution and connect it with the idea of the older word creation—in brief, creative-evolution.

I can give only one or two illustrations of very simple character. Take the grandest illustration we can cite, the *Homo sapiens*. The ancestors of *Homo sapiens* came out of the forests in the northern part of Europe. They belonged to the same race as that to which the majority of us present here tonight belong. Their faculties for civilization could not have been developed by long antecedent experience, or by trial and error. Take another illustration: My son's regiment during the war at Camp Meade consisted of negroes. When I went to see him he said, "Father, I have a very talented black here. He is the best mathematician in the regiment. I would like to have you look at him and tell me whether he is a pure-blooded black or whether he has some white blood. I call him Charles Dar-

win." I examined the negro, and I assure you he was full-blooded. He was better able to calculate the flight of projectiles than any other private in the regiment and better even than my son himself. Of course, they had explained to him the mathematical principle. He never had studied mathematics, but he had in his mind the creative capacity.

These two simple illustrations might be multiplied a hundred-fold. Take the case of a Peruvian artist who came to New York bringing two Peruvian boys out of the forests of South America, native Indian boys so absolutely crude and untrained that they had no manners and had to be practically house-trained. I saw those boys three years later, dressed in neat sailor suits. They spoke three languages in addition to their native Indian tongue—Spanish, French and English. They were placed in a church school and they stood well in their classes. What antecedent experience had there been?

The same evidence for this creative element which we observe rising in all parts of the organism, we observe rising in the mind. But I must not transgress on the very interesting addresses to follow me, so I will close by showing you a few illustrations bearing on this subject of the antiquity of man.

EXPLANATION OF THE ILLUSTRATIONS

Chart I. A line separates the Age of Man and the Age of Mammals. The area above the line represents the Age of Man, which is now estimated at one million years. Below is an area which represents the sum of the Age of Mammals, estimated now at 300,000 years. Here we find the sub-Red Crag dawn man, capable of making the flints I spoke of as *rostricarinales*. Above this is the Foxhall dawn man making a great variety of flints, and then the Piltdown dawn man making a few flints; Piltdown man, with a cranial capacity of 1240 ccm., gives us our first knowledge of the brain, the first concrete evidence we have of human intelligence at a period which may be soundly estimated at 1,250,000 years. The Foxhall flint layer, in which we find fire-places and a different type of flint, stood the test of the most rigid inquiry on the part of French archeologists, although it received for fifteen years the greatest incredulity all over the world. In fact, I was not convinced myself until I visited there.

The rostro-carinate ('beak-keeled') flint is an implement which was used in the chase. There are types of implements indicating a great variety of occupations on the level slightly above the Foxhall level near Ipswich, England. A jaw of modern human type, with a prominent chin, was found in the Foxhall quarry and was recorded by an American dentist living in London. Unfortunately it was not preserved and one of the greatest calamities of science is that it has been lost. We can not authenticate it as absolutely belonging in this level.

A tree of the human race by Professor Gregory, of Columbia University, makes a sharp division between the anthropoid apes—gorilla, chimpanzee, orang and gibbon—and the human stock, going back to a period now estimated at fifteen million years, on the dividing line between the Oligocene and Miocene. The brain of the Trinil type will be more fully explained to you by Dr. Tilney. The profile of the Piltdown man of Upper Pliocene age shows an efficient chin, a well-developed head and a very comfortable brain capacity. The profile of a modern Bushman in South Africa, known to be a man of talent, has a similar brain capacity to the Piltdown man—the one modern and the one living 1,250,000 years ago.

Chart II is a recent summary. Fossil stocks are indicated on the left branch, ending in the Trinil, Neanderthal, etc.; modern stocks are represented by the branch to the right terminating in the Mongoloid, the Alpine, the Caucasian, Negroid, etc. Down below, a period four million years back presents the fossil bone implements, which give that very remote date for the tool-making powers of man.

THE MANAGEMENT OF MEASLES IN HOSPITAL
AND HOME¹*(Abstract)*

HENRY JAMES SPENCER

(Delivered before The New York Academy of Medicine, March 17, 1927.)

Two points of approach are necessary to a consideration of this subject. The first concerns the stage of the disease, the second the place where it is treated.

Exposed, susceptible cases occur chiefly in the general hospital and the home. Every attempt should be made to prevent exposing the group under five years of age because of its high mortality rate (90 per cent. or more). Prevention of exposure is at present too much to expect in the home but can be attempted in the hospital. There physicians and nurses can do a great deal if always on the alert. Special contagious disease experience will prove helpful. The aseptic technic should be applied to every pediatric service to cut down contacts for a period long enough to assure freedom from contagion. This method requires thorough training of the entire medical, surgical and nursing personnel and the utmost cooperation of all concerned. Not all contagion will be eliminated but it will be greatly reduced and sufficiently localized to prevent closing a whole ward or division.

Prevention or modification of a threatened attack of measles lies chiefly in administering convalescent or adult serum. Three thousand seven hundred and twenty-one cases receiving convalescent serum before the eighth day gave 3,237 (87 per cent.) completely protected; 434 (11.7 per cent.) modified measles; and 50 (1.3 per cent.) unmodified measles with no deaths. Solomon and a few others report about 16 per cent. deaths where the optimum dose or type of serum was not used. Adult serum has proven valuable in the relatively few trials recorded. The specific sheep serum of Degkwitz is still on trial. The duration of the passive immunity produced by serum is so brief as to require frequent re inoculation where exposure is repeated.

¹ This article is to be published in full in the Jr. of the A. M. A., October.

The mortality in childhood is due chiefly to factors which reduce resistance to disease. Crowding, with its close contacts, lack of proper food, sunlight, cleanliness, fresh air and adequate medical attention are large factors counting against a child, and statistics from several sources prove this conclusively. Every physician should carefully consider the child's home environment and decide for or against the hospital on this account. Statistics from the Willard Parker Hospital for 1926 show 45 per cent. deaths among those admitted with bronchopneumonia, and 31 per cent. where bronchopneumonia developed after admission.

Rest, warmth, plenty of air and light, good food and good nursing are the great essentials. The child ill with measles should be isolated for its own protection, and no one with a respiratory infection should be allowed near it unless protected by a mask. Those who handle the child should in addition observe the principles of aseptic technic. The mortality in any large group of measles victims is much higher when acute respiratory infections are prevalent.

Convalescent serum practically eliminates the catarrh of measles. Thus the respiratory tract is less vulnerable to secondary invaders, bronchopneumonia is practically eliminated and mortality is reduced.

When measles appears in a hospital (1) immediately isolate developed cases; (2) isolate susceptible contacts showing unexplained fever; (3) discharge all possible children who have had measles; (4) install aseptic technic especially if no isolation rooms exist; (5) prevent secondary infections; (6) give the best of nursing care.

In the contagious-disease hospital the aseptic technic is very important but must not displace or weaken the nursing care. Properly-trained nurses and physicians can furnish both excellent nursing and thorough aseptic technic without too great an increase in the personnel provided they are conscientious in their work.

The sole purpose of the aseptic technic is prevention of cross or secondary infections. This method was apparently begun by Grancher some thirty-five years ago. Separation of patients by sufficient air space or by some type of partition prevents droplet infection. Surgical asepsis prevents the transfer of infectious

material from patient to patient by means of the hands, clothing, instruments and utensils of doctors, nurses and orderlies. Confining the patient to a restricted area which is contaminated by himself alone completes the system.

The results fully justify the laborious technic. With experience, time- and labor-saving modifications will undoubtedly appear. This is very important where 3,000 and more contagious patients are handled each year. The value of the method may be judged somewhat by the reduction in mortality and further by the reduced incidence of cross infections. The Willard Parker Hospital records from 1919 to 1926 inclusive, a series of 9,000 measles cases, yield the following figures. Aseptic technic for measles was instituted in 1924 and developed to full form in December, 1925. Since larger epidemics appear in alternate years three sets of figures are given: 1919-1923 (two epidemic and three interval years); 1920-1922 and 1924-1926 (each two epidemic and one interval year).

Percentage mortality—

	1919-1923	1920-1922	1924-1926
Borough of Manhattan	2.88	2.97	1.96
Willard Parker Hospital	15.67	17.77	9.16 (expected 11.73%)
Per cent. borough cases admitted to Willard Parker Hospital	7.89	7.15	7.87
Per cent. borough deaths occurring in Willard Parker Hospital	42.96	42.74	38.34
Ratio—Per cent. cases to per cent. deaths 1:	5.44	5.98	4.87
317 deaths expected during 1924-1926. 258 deaths occurred.			

Secondary Infections Table

		Per cent.
1922-1923. Total cases contagious disease admitted.....	8220	
Total secondary infections after admission.....	159	1.93
1924, '25, '26. Total cases, etc.....	10209	
Total secondary infections, etc.....	86	0.84
In the measles service for 1926 the cross infection rate was		0.53

The aseptic technic is only as strong as the weakest link in the human chain practising it. One person can in a few moments undo the careful work of many.

Abstracts of Papers Presented at Section Meetings

Section of Neurology and Psychiatry, February 8, 1927

THE PALAEOMORPHOLOGY OF THE HUMAN HEAD:
TEN STRUCTURAL STAGES FROM FISH TO MAN

WILLIAM K. GREGORY, PH.D.

The human head is a sort of multiple palimpsest whereon is imprinted the traces of many successive stages. From the earliest protochordates of pre-Silurian times it inherits the ground plan of chordate organization in which the nerve tube is dorsal to the notochord, which in turn is dorsal to the gut.

From the ostracoderm of protognathous stage of Ordovician and Silurian age the human skull inherits its basal vertebrate pattern, with the paired olfactory, optic and otic capsules in antero-posterior series. In this stage the pineal body was well developed.

From the primitive gnathostome stage of pre-Devonian age the human skull derives those earlier ontogenetic stages in which the "primary jaws" and the braincase are laid down in cartilage. The mother mass of the jaw muscles, serially homologous with certain muscles of the gill cartilages and innervated by the mandibular branch of the trigeminus, also dates from this primitive gnathostome stage.

From the air-breathing, lobe-finned ganoid stage of Lower Devonian age the human skull derives its dual character as an integrated complex of an endocranium, preformed in cartilage, covered by and fused with a sheathing of dermal elements. The existence of dentigerous premaxillae, maxillae and dentary bones also dates from this stage.

To the earliest embolomorous amphibian stage of Lower Carboniferous age the human skull owes the elimination of the entire

opercular-branchiostegal and gular series of dermal plates. To this stage the human skull owes its general tendency to conform to the basic skull pattern for all tetrapods in so far as it retains in the dermocranium paired nasals, frontals, parietals, interparietals, premaxillae, maxillae, dentaries, gonialia, jugals, squamosals, dermo-palatines, pterygoids, unpaired vomers; and in the endocranium, median supraoccipital, basioccipital, basisphenoid, presphenoid, ethmoid, paired exoccipitals, periotics, mallei, incudes, intercalaria, stapedes, alisphenoids, orbitosphenoids. It is true that the identity of certain of these elements in the human skull with the corresponding parts in the oldest amphibia is at first sight far from clear; but by means of the intermediate conditions supplied by the skulls of the extinct mammal-like reptiles, together with the comparison of the ontogenetic stages of recent amphibians, reptiles and mammals, the solution of such outstanding problems as the origin of the alama of the sphenoid complex and the derivation and homologues of the auditory ossicles now seems tolerably clear.

To the earliest reptilian stage of Upper Carboniferous age the human skull owes the elimination of the postsplenial and coronoid elements of the mandible.

To the earliest theromorph stage of the Permo-Carboniferous the human skull owes the elimination of the intertemporal and supratemporal elements, the trophibasic modeling of the skull, and the first appearance of a temporal fossa.

To the earliest therapsid or mammal-like reptile stage of the Middle Permian the human skull owes the elimination of the postfrontal, the dorsal growth of the maxilla, the exclusion of the lacrymal from contact with the nasal, the enlargement of the temporal fossa, the differentiation of the teeth into incisors, canines and postcanine teeth, the beginnings of the ascending ramus of the mandible.

To the latest or cynodont therapsids of the Triassic the human skull owes the dorsal growth of the maxilla, which gains contact with the nasal, the mammalian character of the zygomatic arch and temporal fossa, the mammalian character of the epipterygoid, transformed into an alisphenoid at this stage, the development of an ascending ramus of the dentary, the full differentiation of the dentition into incisors, canines, premolars, molars. In the

human embryo the incus and malleus have the relations of the quadrate and articular jaw elements of the cynodonts. To this cynodont stage the human skull owes also its double occipital condyles, its secondary palate, the reduction of the pterygoid and the loss of its contact with the quadrate, the virtual elimination of the ectopterygoid, and the beginning of the ethmoturbinal scrolls.

To the proto-mammalian stage, perhaps of the Upper Triassic age, the human skull owes above all the establishment of a temporomandibular joint after the manner described by Gaupp, through the further upgrowth of the ascending ramus of the dentary till it gained contact with the squamosal. To this stage it owes also the reduction of the quadrate and articular to the size of the incus and malleus. From this stage dates the complete elimination of the postorbital bone, the fusion of the paired dermoccipitals into an interparietal, the completion of the secondary palate, the final reduction of the pterygoid bone, the fusion of the otic elements in a petrotic mass, the full development of the turbinate elements.

To the primitive primate stage, dating from the Lower Eocene, the human skull owes the beginning of the contact of the frontals with the jugals behind the orbit; also the incipient enlargement of the eyes and the fundamental pattern of the upper and lower molars.

To the primitive anthropoid stage, dating perhaps from the Miocene age, the human skull owes the shifting of the eyes to the front of the head, a good part of the downward bending of the face upon the cranium, the early fusion of the premaxillae with the maxillae, the reduction of the dental formula to $I_{\frac{2}{2}} C_{\frac{1}{1}} P_{\frac{2}{2}} M_{\frac{3}{3}}$ and the general patterns of the upper and lower incisors, canines, premolars, molars.

From the protoanthropoid stage is derived the shutting off of the orbits from the temporal fossa, and the general modeling of every bone of the skull, which differs from that of the anthropoid only in the quantitative development of certain parts.

Nine instances of such peripheral metastatic suppurative lesions originating from a primary intrathoracic focus have been observed in the surgical wards of the Mount Sinai Hospital since 1918. The pulmonary lesions were pneumonitis, empyema both recent and old, lung abscess, and bronchiectasis. The metastatic infections occurred in the soft parts, the joints, the epiphyses and the flat bones. In only one case was bacteremia demonstrated. In only one instance did the metastatic lesion assume the foul character of anaerobic infection so frequent in lung suppuration.

When dealing with brain abscess secondary to pulmonary infections the distinction between embolic and metastatic cerebral suppuration is difficult to maintain not only clinically, but also pathologically. The clinical manifestations of brain abscess are well known and will not be detailed here. Of seven cases suspected only three could be subjected to craniotomy and in two the abscess was found. An observation of clinical importance was made from the review of our cases; namely, embolic phenomena occur especially in those patients who have hemoptysis or post-operative hemorrhage from the lung after pneumotomy for drainage.

A review of the post-mortem records since 1918 was made and the results may be tabulated as follows:

Eighteen complete examinations, including the brain—

Pulmonary Lesion.	Pulmonary Vein Lesion.	Embolic or Metastatic Lesions.
1. Lobar pneumonia.	None.	Purulent encephalitis.
1. Broncho-pneumonia and empyema.	None.	Abscesses of kidney.
1. Broncho-pneumonia and empyema.	None.	Meningitis.
15. Pulmonary suppuration.	2 Thrombosis.	6 Brain abscess.
	1 Phlebitis.	1 Infarct of kidney.
	1 Arterio-venous aneurism.	1 Abscesses of both kidneys.
		1 Gluteal abscess.
		1 Sacroiliac joint suppuration.

In forty-three complete examinations except for the brain the following secondary lesions were noted: Infarction of spleen, 2;

abscesses of kidney, 2; multiple joint infection, 1; peritonitis, 1. In four cases pulmonary vessel lesions were demonstrated: purulent thrombophlebitis, 2; eroded veins in wall of abscess, 1; thrombosis of small artery with infarction at site of exploratory puncture, 1 (sudden death).

In forty-two cases only the thoracic viscera were obtained. In four of these thrombosis in pulmonary vein radicles was found. Thus in ninety-eight cases pulmonary vascular lesions were found in twelve instances. A more detailed examination with reference to this point would probably yield a still larger incidence.

The occurrence of convulsions, collapse, and even death, upon exploratory puncture of the chest, or irrigation of an empyema cavity formerly ascribed to "pleural shock," are now known to be cases of cerebral air embolism. A number of such instances have been observed in our cases. In one case a woman, upon whom bronchostomy for post-tonsillectomy lung abscess had been performed three years previously, was explored for hemorrhage from the fistulous tract. She ceased breathing suddenly ten minutes after the operation was begun. At autopsy air was found in the heart and in the vessels of the brain.

Conclusions: The peripheral complications of pulmonary infections may be embolic or metastatic. The embolic complications may be aseptic or septic, and are referable to thrombotic and phlebitic lesions of the pulmonary veins. They may involve not only the brain but arteries of the extremities, kidneys, and spleen. In empyema cases embolic phenomena should be referred to the underlying pulmonary disease and not to the empyema *per se*. Metastatic infections of soft parts, joints, epiphyses and flat bones occur in pleural and pulmonary infections, more frequently in empyema and lung suppuration than in simple pneumonitis.

Section of Neurology and Psychiatry, March 8, 1927

ON ASSOCIATED MOVEMENTS AS FOUND IN INVERTEBRATES AND VERTEBRATES INCLUDING MAN—A STUDY IN THE COMPARATIVE PHYSIOLOGY OF POSTURE

WALTER M. KRAUS

- A— 1. Every “associated movement” in the present accepted sense of these words has as its cause a primary muscular movement. “Associated movements” are therefore secondary to this primary muscular movement.
2. The reflex arc for every “associated movement” carries stimuli arising in muscles on the afferent side, and stimuli passing to muscles on the efferent side.
3. The secondary movement or response is a postural response, that is, one which alters posture, and is limited to somatic musculature; I propose therefore to call “associated movements” *Postural Somatic Reflexes*. It is unnecessary to include the word muscular.
4. Thinking now of all groups of postural somatic reflexes, *i.e.*, any reflex which alters posture, we note that the stimulating impulse may arise either in muscles (example—voluntary contraction for eliciting associated movements), skin (example—pin prick), subcutaneous tissues (example—pressure), tendons or periosteal surfaces (example—tapping with a hammer).
5. The afferent parts of these arcs which excite postural somatic reflexes may be classified as myaesthetic and non-myaesthetic. It becomes apparent that all tendon reflexes such as the knee-jerk, and indeed all reflexes involving response in muscles, must have a stimulus which is either myaesthetic or non-myaesthetic.
6. Turning now to the responses to the above mentioned two groups of stimuli, we find that there may be somatic muscular responses, visceral or smooth muscular responses and visceral glandular responses. It

is only with the first that we are concerned at present.

7. The simplest postural response is that accompanying the stretch reflex of Sherrington and Lydell; in this the muscle contracts in response to its own stretching by mechanical means. This in its simplest form is the unimuscular somatic postural reflex.
8. When tendon reflexes, periosteal reflexes, skin reflexes, such as radial periosteal and abdominal reflexes, are considered, we find that the muscles involved in the response are one or several. This is the second large category of somatic postural reflexes.
9. The next most complicated somatic postural reflexes are those involving axial musculature or that of a single limb. The flexion reflex of the leg, as well as the muscular responses of "associated movements," are among these.
10. The classification of postural patterns due to integration of neurone activity, previously described by the author, indicate the progressive combination of more and more complicated pictures of combined postures, until we reach that very complicated combination of simple postures manifested in human erectness. Thus there is demonstrable in man a sequence, from the most simple to the most complicated postural patterns.
11. Automatic acts such as running, swimming, jumping, crawling, etc., are somatic postural reflexes of complicated character. In disease, as, for example, hemiplegia and Parkinsonism, the arcs for these reflexes may be disordered (example—gait, propulsion).
12. All of the "associated movements" and automatic acts and postural responses, such as the signs of Kernig, Brudinzki, Marie and Foix, Hoover, etc., may easily be placed in this classification of postural patterns and their combinations.

B— 1. The second part of the paper is devoted to an inquiry into the phylogeny of posture. Many difficulties of the subject were emphasized. The occurrence of the simplest patterns in the most ancient types of animals is illustrated by the powerfully-closed shell of the

- oyster and clam in response to an attempt to open the shell (stretching).
2. A table was presented which suggested how the appearance of certain postural patterns in various animal groups from fish to man may be correlated with geological periods.
 3. Postural somatic reflexes are one indication of the behavioristic possibilities of animals, and furthermore of the effect of the environment filtering through the particular nervous system which they may possess. Much may be gained from a comparative evolutionary study of postural somatic reflexes, since this will throw light upon the evolution of behavior.

Section of Neurology and Psychiatry, March 8, 1927

SOME OBSERVATIONS ON THE DEVELOPMENT OF HUMAN MOTILITY AND ON MOTOR DISTURBANCES

G. SCHALTENBRAND

In order to study pathological movement and position reflexes in man it is necessary to know his normal movement and position reflexes. These normal phenomena were investigated in a series of over 120 children of all ages, according to the methods used by the school of Magnus and de Kleyn for their examination in animals.

In the new-born baby the neck-righting reflex is present; the labyrinthine-righting reflex and the body-righting reflex on the body are still incomplete. A certain number of babies have Magnus-de Kleyn reflexes in the arms. Human babies have during the first three months of life a peculiar extension reflex of the extremities to all kinds of sudden stimuli, such as loud noises, passive movements of the limbs, and especially passive movements in space. This is the so-called *Moro reflex*. In the second half of the first year babies have all the righting reflexes of quadrupedal animals, and they progress on all fours. Their neck-

righting reflex is positive. They sit up from the recumbent position by rotating around their body axis. In the second year of life they learn to stand on their legs, and this acquisition starts a gradual change of the whole motility which is completed at the age of about five years.

All the righting reflexes can be inhibited voluntarily, much more than in animals. The neck-righting reflexes and the Magnus-de Kleyn reflexes disappear. Children, as well as healthy adults, are able to stand up from the recumbent position by symmetrically lifting their bodies off the floor.

In pathological conditions of the righting reflexes, two definite syndromes can be distinguished: the decerebrate syndrome and the quadrupedal syndrome.

The *decerebrate syndrome* consists in increase of muscle tone, predilection of tone for the antigravity muscles, Magnus-de Kleyn reflexes (tonic neck reflexes) on the extremities, absent labyrinth and body-righting reflexes on the body; while the neck-righting reflexes may be present, and also a positive stretch reaction of the extremities to sudden stimuli such as noises, passive movements of the head or of the joints (Moro reflex). This Moro reflex may be very striking.

This syndrome is frequently found in tumors of the brain or ventricular hemorrhages which compress the midbrain. It may be partially present after all cerebral lesions of the pyramidal tracts (some examples are shown).

The *quadrupedal syndrome* consists in a return of the primitive form of standing up from the recumbent position by rotating around the spine, in a positive neck-righting reflex and in an instability of station which leads the patient to prefer a position on all fours. (This syndrome can be diagnosed only when the ventral muscle chains of the body are intact. It may be imitated by muscle dystrophy or severe muscle weakness of other origin.) The syndrome can be connected with a *lack of inhibition of the righting reflexes*, so that the patient is unable to remain quietly in the recumbent position.

It was found during epileptic attacks, in some cases of glioma of the temporal lobe, in an idiotic child, in cases with double athetosis, and in a child with a cerebellar tumor which had caused a large hydrocephalus.

Cerebellar lesions, however, do not produce this syndrome, as a rule. Cerebellar patients are able to sit up symmetrically, but they show a peculiar asynergy of this movement, described by Babinski, which consists in a throwing upward of the legs.

(Examples are shown both for the quadrupedal syndrome and for cerebellar asynergy.)

Section of Medicine, March 15, 1927

THE PERENNIAL TREATMENT OF SEASONAL HAY FEVER

AARON BROWN

In pollen hay fever, a diagnosis is made qualitatively as to the causal pollen factor or factors, and quantitatively as to the degree of sensitivity, the latter by the method of Cooke.

The pollen extracts used are prepared with Coea's alkaline extracting fluid and are standardized by their nitrogen content. By the intradermal method of skin testing, the pollen cases are put into various classes. The injections, amount, interval, and maximum dosage reached, depend upon the classification. The more sensitive the patient the less is the amount of the extract necessary to protect him.

Treatment is either pre-seasonal or seasonal. In the former treatment is begun two or three months prior to date of expected onset, injections being given at from five to seven-day intervals, to reach the maximum dosage in its class just before the hay fever season begins; in the latter, an effort is made rapidly to bring up the patient's immunity by injections being given daily or every other day. Injections are continued throughout the season.

At the present time treatment stops with the end of the pollen season, to be resumed again the following year. Whatever immunity has been built up in the patient is lost to a degree that has not heretofore been determined, making it necessary to start the treatment, each year, as though the case were a new one.

It is proposed now to treat these pollen cases throughout the year.

In undertaking this, there were two vital questions that had to be solved. The first was, whether the interval between injections could be extended long enough to make the method more convenient than the present one. The second was, whether the clinical protection obtained was as good as that obtained by the previous method.

The investigation of the first question was carried out by simply continuing the treatment at the end of the pollen season and lengthening the interval between injections, first to ten days, then two weeks, three weeks, four weeks, or even longer.

One difficulty that presented itself in applying the new plan was the possibility of a constitutional reaction upon changing from an old, somewhat deteriorated extract, to a new and therefore more active one. This difficulty has been overcome in several ways. Firstly, the method of preparing the extracts has been improved. Secondly, precautions are taken to keep the extracts properly iced. Thirdly, in changing from the old to the new extract, either give the dose in two injections at an interval of thirty minutes, or give a mixture of the old and the new extract.

The number of constitutional reactions was less than that usually obtained in the ordinary pre-seasonal treatment.

With the limited number of cases reported the therapeutic results were very much better than with the previous method.

The annual plan of treatment does not eliminate the necessity of an annual determination of the degree of constitutional sensitiveness, because this sensitiveness has been found by Cooke and his associates to change in some individuals, and Levine and Coca have confirmed this in their quantitative study of the atopic reagins in hay fever subjects after treatment.

The precautions that have to be taken in applying the annual treatment are first, the careful observation of each case, while the interval between injections is being lengthened, and second, the cautious changing from an old extract to a new one.

The special advantages of the annual treatment are obvious. They are:

1. That the treatment may be instituted at any period of the year.

2. That the actual number of visits to the office or clinic can be lessened from the usual twenty or more to twelve.

3. There is less likelihood of an interruption of the treatment by absence, or illness from other causes.

4. It distributes the load of the physician's work in clinic and private practice throughout the year.

Section of Genito-Urinary Surgery, March 16, 1927

UNILATERAL RENAL APLASIA

DAVID W. MACKENZIE, Montreal

ALLAN B. HAWTHORNE, Montreal

(Department of Urology, Royal Victoria Hospital, Montreal.)

A short series of six clinical cases of imperfect development of the kidney. This condition was unilateral and not associated with any congenital anomalies. One case was of complete absence of the left kidney, with absence of left trigonal ridge and ureteral orifice, the right kidney being hypertrophied.

Three cases showed rudimentary ureters on one side patent for some distance but ending blindly above. In these cases nodules of connective tissue containing remnants of renal tissue were found. In two cases there were thin-walled cysts.

These three cases had definite pain related to the side of the aplasia which was relieved by the removal of the rudimentary cysts and nodules. Two other cases showed marked hypoplasia of the kidney. All cases involved were functionless on the side of the aplasia.

The last five cases were operated upon and microscopical section confirmed the gross findings.

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Section of Ophthalmology, March 21, 1927

A DISCUSSION OF SOME OF THE MORE COMMON OPHTHALMIC OPERATIONS

F. H. VERHOEFF, Boston

After making some remarks upon the subject of ophthalmic operations in general, the speaker described some of the procedures that had impressed him as especially valuable during his operative experience of twenty-seven years. In connection with strabismus operations he pointed out that there should always be taken into consideration the facts that tenotomy causes exophthalmos and limitation of motion, while advancement of a muscle causes enophthalmos and astigmatism. He now believes that a partial tenotomy is never indicated—if a tenotomy is required at all it should be complete and its effect limited by a suture if necessary. The advancement operation he still prefers is the one he devised when a medical student. The so-called resection operations and tucking operations are inferior to it in important respects.

The operative treatment of acute and chronic dacryocystitis was discussed. In acute cases he employs the Agnew incision. In chronic cases with fistula, he enlarges the fistula, packs the sac with cotton and then extirpates.

Enucleation of the eye he always performs under local anesthesia, except in cases of young children. The needle is inserted into the orbit through the upper lid in three places. He always implants a glass ball except in cases of old people. Only one suture is employed, by means of which Tenon's capsule is overlapped in four layers in front of the ball. The ocular tendons are not included in the suture. An artificial eye is inserted and a pressure bandage applied.

In cases of contracted socket, the cavity is distended by means of a glass ball under a pressure bandage, and later shaped by means of an artificial reform eye held in place by a pressure bandage. Skin grafting should be employed only as a last resort.

For ptosis, he prefers Reese's operation when the levator is entirely inactive. Otherwise he prefers resection of half the tarsus combined with advancement of the levator.

In cases of trichiasis resulting from trachoma, extirpation of the tarsus usually relieves the condition. In especially bad cases, scalping of the lid margin is the best procedure.

For exposure keratitis with infection, following Gasserian ganglion operations, he has found a conjunctival flap remarkably effective. It is allowed to remain indefinitely, or until the lacrymal secretion returns, when it is easily removed with a spatula, leaving a clear cornea.

For acute glaucoma, he does a Reese iridectomy unless the anterior chamber is too shallow, in which case he makes the incision with a narrow Graefe knife and leaves a conjunctival bridge. For chronic glaucoma, he employs a modified iridotaxis. A button-hole is made in the iris midway between the pupil and the limbus, the iris is grasped at the upper margin of the hole and pulled out beneath the conjunctival flap. In this way the sphincter is allowed to remain within the eye so that the pupil is displaced slightly if at all. This is also the best operation for buphthalmos.

The speaker then described his method of performing iridectomy in operations for cataract. In conclusion he briefly described a new method he had recently devised for removing cataracts with their capsule and for suturing wounds of cataract operations.

Section of Obstetrics and Gynecology, March 22, 1927

THE USE OF MERCUROCHROME AS A VAGINAL ANTISEPTIC BEFORE THE INDUCTION OF LABOR, BASED ON THE ANALYSIS OF 171 CASES

H. W. MAYES

During the past ten years there were 9,580 deliveries at the Methodist Episcopal Hospital with 171 bag inductions of labor.

From 1917 to 1924 there were 93 inductions with a gross morbidity of 29 per cent. and eight maternal deaths.

For two and a half years mereurochrome has been used in the preparation of the perineum and as a vaginal antiseptic

before all deliveries, and 3,500 cases with this technique have had a morbidity of 8.6 per cent. Seventy-eight inductions of labor following the use of mercurochrome have had a morbidity of 11.5 per cent., and one maternal death due to hemorrhage.

One thousand six hundred sixty-two deliveries before the use of mercurochrome had an average morbidity of 12.7 per cent.

The morbidity of 14 inductions on primipara before the use of mercurochrome was 50 per cent. with one death. Following the use of mercurochrome, there were twenty-nine inductions with no deaths and a morbidity of 13.7 per cent.

Sixty-three cases were induced for toxemia. Twenty-nine were in the mercurochrome series with a morbidity of 10.3 per cent. with no deaths, while those without mercurochrome had a morbidity of 20.5 per cent. and three maternal deaths.

Without mercurochrome the morbidity increased steadily with the time the bag was in the uterus. With mercurochrome the reverse was true; the longer the bag was in the uterus, the less the morbidity.

A rectal tube was used in addition to the bag in nineteen cases, but the length of labor was not shortened.

Sixty-nine of the infants were premature. There were forty-two still-births and sixteen of the babies died following delivery, while one hundred and thirteen were discharged in good health.

PUBLIC HEALTH RELATIONS COMMITTEE

DINNER TO SIR GEORGE NEWMAN

The brief visit of Sir George Newman in this country was made the occasion for an expression of personal respect and of recognition for his valuable service as Chief Medical Officer of the Ministry of Health and of the Board of Education of England. On the evening of May 21, the Committee on Public Health Relations of the New York Academy of Medicine tendered a dinner to Sir George Newman, who is an Honorary Fellow of the Academy. Those present at the dinner were:

Drs. W. P. Anderton

George Baehr

Fenwick Beekman

Arthur Bingham

John W. Brannan

James B. Clemens

E. H. L. Corwin

Charles L. Dana

H. S. Dunning

Haven Emerson

Lewis F. Frissell

S. S. Goldwater

Louis I. Harris

Drs. John A. Hartwell

Alfred F. Hess

Charles G. Heyd

Samuel W. Lambert

C. H. Lavinder

Sir George Newman

William H. Park

Bernard Sachs

Frederic E. Sondern

J. Bentley Squier

George David Stewart

Nathan B. Van Etten

Sir George spoke very eloquently on a number of interesting subjects, ranging from the need of better appreciation of beauty to the high quality of the Civil Service employees in the British Government, and to the successful working out of health insurance and factory inspection, which still have very many obvious deficiencies that are being gradually eliminated in practical application. Sir George paid tribute to the advances in public health administration made in this country, and he mentioned particularly the immunization against diphtheria and scarlet fever, which has made such headway in this country because of the cooperation of the public, a condition which does not prevail in England. He also spoke of the superiority of our control of the milk supply. He finished his address with the plea for "little books," pointing out that the great masterpieces in medical literature have been comprised within a small compass.

Short addresses of welcome were made by Dr. Samuel W. Lambert, President of the Academy, Dr. Charles L. Dana, Chairman of the Committee on Public Health Relations, Dr. Haven Emerson, and by Dr. Louis I. Harris in the name of the Health Department. Dr. George David Stewart was the toastmaster.

RECOMMENDATIONS RELATIVE TO THE CONTAGIOUS DISEASE HOSPITALS OF THE DEPARTMENT OF HEALTH OF THE CITY OF NEW YORK

1. Efforts should be made by the Department of Health to impress the general practitioner with the paramount importance of early hospitalization of patients suffering from communicable diseases, when the home environment of the patient is such that he is not likely to obtain the proper type of care.

2. It is imperative that a cooperative arrangement be worked out between the hospitals of the Department of Health and the physicians of the community by which the active interest of the physicians would be maintained in the cases referred by them to the hospitals.

3. It is suggested that the Health Commissioner consider the desirability of vesting in the medical boards of contagious disease hospitals authority to summon for conference physicians who have failed to give the best possible service to their patients before their removal to the hospital. This should apply particularly to physicians whose patients die within forty-eight hours after admission to the hospitals.

4. Contagious disease hospitals should become the training centers for the diagnosticians of the Department of Health, as well as for the entire corps of medical inspectors of the Department. Such an arrangement, whereby every new medical officer of the Department would receive training for several months in the hospital, prior to his assignment to field duty, would be beneficial for the professional competence of the medical inspectors and would assure to the hospitals an auxiliary staff. Similarly, experience in a contagious disease hospital or equivalent training should be made a prerequisite for every new nurse on the staff of the Department of Health.

5. The Committee heartily endorses the arrangements which have been made by the Department of Health with the medical schools in the city, whereby nominations for positions on the visiting and assistant visiting staff of the Willard Parker Hospital are made in rotation by the deans of the cooperating medical schools to the Commissioner of Health. The Committee believes

that this plan should be extended to all of the hospitals of the Department, and expresses its belief that such an arrangement could be worked out in an advantageous and practical way.

6. The Committee desires to reiterate its recommendation made some time ago, that all of the hospitals in the city should avail themselves of the opportunities offered by the hospitals of the Department of Health, to train for a period of time such of their interns who have not had an adequate opportunity to learn how to recognize and treat certain types of communicable disease.

7. The Committee suggests that the attention of authorities of general hospitals be officially called to the opportunities for technically high-grade training in nursing care of contagious diseases at the Willard Parker and other Health Department hospitals, with a view of making a short period of this training a prerequisite to graduation from Nurse Training Schools.

8. Every effort should be made at the hospitals of the Department of Health to safeguard the patients against secondary (cross) infections and complications by rigid enforcement of every known method of aseptic technique and by maintaining adequate nursing standards.

9. All facilities for scientific research should be provided for the medical staff of the hospitals in the Department of Health.

10. Adequate clinical record-keeping should be enforced in all of the hospitals of the Department, and this should be a responsibility of the respective medical boards, as well as of the medical directors of the hospitals.

11. The statistical control service should be centralized and made uniform for all of the hospitals of the Department of Health, under the Director of the Bureau of Hospitals.

12. An adequate Social Service staff should be made available to every hospital of the Health Department.

13. The approved plans for additional construction and renovation of some of the present buildings should be executed as expeditiously as possible, in so far as funds are available.

14. A contagious disease unit should be established on the grounds of Seaview Hospital to serve the needs of Staten Island.

15. The Committee recommends the testing out of a plan for a better utilization of the hospitals of the Department of Health by admitting during the summer and autumn months certain

types of communicable disease, such as erysipelas, typhoid fever, venereal diseases, encephalitis lethargica, poliomyelitis, and cerebrospinal meningitis. It is also recommended that the Director of Hospitals consider the possibility of using a vacant hospital pavilion during summer months for tonsil and adenoid operative service for children of pre-school and school age.

16. The frequently-occurring long delays in transporting patients to the hospitals should be obviated by equipping each of the hospitals with an adequate number of ambulances. This would, likewise, render unnecessary the occasional practice of bringing more than one infected patient in the ambulance at the same time. The attention of the Director of Hospitals is called to the disadvantage of having interns presumably on ward duty drafted for long periods of time every other day for ambulance duty.

17. The Health Department regulations for isolation facilities in institutions should be enforced in order to avoid the present abuse which results from the anxiety of the hospitals to remove contagious disease patients to Health Department hospitals, in many instances at the time in the progress of the disease when such a removal jeopardizes the recovery of the patient.

18. The Committee recommends that the city provide convalescent service for the patients discharged from the Contagious Disease Hospitals. The property which the city has long owned on Eastchester Road, in the Bronx, could be utilized to build convalescent homes for the patients of the Manhattan and the Bronx; and the grounds of the Queensboro Hospital could be utilized for building a convalescent home for patients from the other boroughs of the city.

LIBRARY NOTES

RICHARD BRIGHT EXHIBIT

This is the centenary of the publication of Bright's *Reports of Medical Cases*, so an exhibit illustrating his career has been arranged in the Library. The following is a list of what has been shown.

Works of Richard Bright (1789-1858)

Travels from Vienna through lower Hungary; with some remarks on the state of Vienna during the Congress in the year 1814. Edinburgh, A. Constable & Co., 1818.

(Open at the title-page. Plates from sketches made by the author. Kindly lent by Dr. A. M. Hellman.)

Reports of medical cases, selected with a view of illustrating the symptoms and cure of diseases by a reference to morbid anatomy. London, Longman . . . 1824-31. 2 vols. in 3.

(Vol. I open at cases of granulated kidneys "connected with the secretion of coagulable urine," p. 9. [Bright's disease] Vol. II open at the title-page.)

Analysis of a specimen of cutaneous perspiration by J. Bostock, M.D., F.R.S., with an account of the case by Richard Bright, M.D., F.R.S.
(*Medico-chirurgical Transactions*, 1828, vol. 14, p. 424.)

Cases and observations connected with disease of the pancreas and duodenum.

(*Medico-chirurgical Transactions*, 1833, vol. 18, p. 1.)

Cases and observations illustrative of diagnosis when adhesions have taken place in the peritoneum, with remarks upon some other morbid changes of that membrane.

(*Medico-chirurgical Transactions*, 1835, vol. 19, p. 176.)

Account of a remarkable displacement of the stomach.

(*Guy's Hospital Reports*, 1836, vol. 1, p. 600. Illustration of case drawn by C. J. Canton.)

Gulstonian lectures, 1833, on the function of the abdomen, and some of the diagnostic marks of its disease.

(*London Medical Gazette*, 1833, vol. 12, p. 281.)

Cases of spasmodic disease accompanying affections of the pericardium.

(*Medico-chirurgical Transactions*, 1839, vol. 22, p. 1.)

Observations on abdominal tumors and intumescence.

(*Guy's Hospital Reports*, 1837, vol. 2, p. 432; 838; vol. 3, p. 179.)

Clinical memoirs on abdominal tumors and intumescence. Reprinted from the "Guy's Hospital Reports." Edited by G. Hilario Barlow, M.D., M.A., Cantab., . . .

(London, New Sydenham Soc., 1860.)

Account of observations made under the superintendence of Dr. Bright on patients whose urine was albuminous. By G. H. Barlow, M.A., M.D. . . .

(*Guy's Hospital Reports*, 1843, 2nd ser., vol. 1, p. 189.)

Die Erkrankungen der Niere (1827 und 1836). In "Deutscher Übersetzungen" . . . von Erich Ebstein. Leipzig, Barth, 1916. (Klassiker der medizin, no. 25.)

Written in Collaboration with Thomas Addison (1793-1860)

Elements of the practice of medicine.

(London, Longmans . . . 1839, only vol. 1 published.)

The Older View on Dropsy

Modern practice of Physic . . . by Robert Thomas, 8 ed., New York, Collins & Collins, 1825.

(Open at p. 567 to show view on dropsy of Bright's contemporaries.)

Obituaries, etc.

Obituary. Dr. Richard Bright. *The Lancet*, 1858, II, p. 665.

Richard Bright, sa vie et ses œuvres. By Charles Lasègue.

(*Archives générales de médecine*, 1859, vol. I, p. 257.)

Richard Bright's travels in lower Hungary; a physician's holiday. By F. H. Garrison.

(*Johns Hopkins Hospital Bulletin*, 1912, vol. 23, p. 173.)

(Open at p. 180, showing portraits of Bright and his father.)

Richard Bright and his discovery of the disease bearing his name. By Sir William Hale-White.

(*Guy's Hospital Reports*, 1921, vol. 71, p. 1. Open at p. 6 showing ward in Guy's Hospital where Bright made his observations; and colored plate reproduced from Brights "Medical Cases.")

The centenary of the discovery of Bright's disease. By Sir William Hale-White. *The Lancet*, 1925, II, p. 769.

(Sir William thinks that the centenary should have celebrated the anniversary of the first study of the disease [1825] rather than the publication [1827].)

Portraits, etc.

Richard Bright, M.D., F.R.S. By T. J. Pettigrew.

(In Pettigrew's Medical Portrait Gallery. Sketch and portrait [engraving].)

Richard Bright on September 13, 1813.

(*Brit. M. J.*, 1913, II, p. 683. Open at p. 685, showing title-page of Bright's inaugural thesis: "De Erysipelate Contagioso.")

Medical education in London.

(London, Ash & Co., 1908. Open at p. 54, showing view of Guy's Hospital, where Bright's observations were made, and a portrait of Bright.)

Portraits of Associates of Bright

Benjamin Travers (from Pettigrew).

Thomas Addison (from *Munch. Med. Woch.*).

Sir Astley Cooper (from Fanning's Gallery . . .).

RECENT ACCESSIONS TO THE LIBRARY

American Medical Association. Council on Pharmacy and Chemistry. New and nonofficial remedies.

Chicago, A. M. A., 1927, 473 p.

American Medical Directory. 10 ed. 1927.

Chicago, A. M. A., 1927, 2574 p.

Anderson, W. K. Malarial psychoses and neuroses.

London, Oxford Univ. Pr., 1927, 395 p.

Bing, R. Compendium of regional diagnosis in affections of the brain and spinal cord. 3 ed.

London, Heinemann, 1927, 204 p.

Biographical sketches and letters of T. Mitchell Prudden, M.D.

New Haven, Yale Univ. Pr., 1927, 311 p.

Borchewsky, B. Pathologie et méthodes d'examen du liquide céphalorachidien.

Paris, Masson, 1926, 56 p.

Breckenbridge, S. P. Public welfare administration in the United States.

Chicago, Univ. of Chicago Pr. [1927], 786 p.

Brogssitter, Ad. M. Histopathologie der Gelenk-Gicht.

Leipzig, Vogel, 1927, 122 p.

Brooks, G. E. Aids to tropical medicine. 3. ed.

London, Baillière, 1927, 228 p.

Bulletin no. ix of the international association of medical museums. Sir William Osler memorial number. 2. impr.

Montreal, privately issued [1927], 634 p.

Butler, T. H. An illustrated guide to the slit-lamp.

London, Oxford Univ. Pr. [1927], 144 p.

Chapman, C. W. The heart and its diseases.

Edinburgh, Livingstone, 1927, 216 p.

Colloid chemistry . . . by selected international contributors
. . . edited by Jerome Alexander.

New York, Chemical Catalog Co., 1926. v. 1.

Compton, A. H. X-rays and electrons.

New York, D. Van Nostrand, 1926, 403 p.

Corrêa de Toledo, F. A. Contribuição ao estudio das tatuagens
em medicina legal.

S. Paulo, Secção de Obras d' "O Estado de S. Paulo,"
1926, 67 p.

Deutsch, F. & Kauf, E. Heart and athletics.

St. Louis, Mosby, 1927, 187 p.

Dide, M. Introduction à l'étude de la psychogénèse.

Paris, Masson, 1926, 221 p.

Diller, T. Pioneer medicine in western Pennsylvania.

New York, Hoeber, 1927, 230 p.

Dingman, H. W. Insurability: prognosis and selection.

Chicago, Spectator Co., 1927, 706 p.

Faber, K. Lectures on internal medicine.

New York, Hoeber, 1927, 147 p.

von Fellenberg, T. Das Vorkommen, der Kreislauf und der
Stoffwechsel des Jods.

München, Bergmann, 1926, 363 p.

Fishbein, M. The new medical follies.

New York, Boni & Liveright, 1927, 235 p.

Fisk, E. L. & Crawford, J. R. How to make the periodic health
examination.

New York, Maemillan, 1927, 393 p.

Ford, F. R., Crothers, B. & Putnam, M. C. Birth injuries of
the central nervous system.

Baltimore, Williams, 1927, 164 p.

Ford, W. W. A textbook of bacteriology.

Philadelphia, Saunders, 1927, 1069 p.

Franz, R. Die Gonorrhoe des Weibes.

Wien, Springer, 1927, 193 p.

Freire, O. Exames e paraceres medico-legaes.

S. Paulo, Saraiva, 1926, 379 p.

Fuhrmann, F. Die Chemie der Nahrungs- und Genussmittel.

Berlin, Wien, Urban, 1927, 610 p.

Gwinn, C. D. A textbook of orthodontia.

Philadelphia, Lea, 1927, 242 p.

- Stern, B. J. Social factors in medical progress.
New York, Columbia Univ. Pr., 1927, 136 p.
- Stewart, Sir J. P. Intracranial tumors, and some errors in their diagnosis.
London, Oxford Univ. Pr., 1927, 206 p.
- Textbook of medicine. By American authors. Ed. by R. L. Cecil.
Philadelphia, Saunders, 1927, 1500 p.
- Transactions of the ophthalmological society of the United Kingdom. v. 46.
London, Churchill, 1927, 410 p.
- Vallée, A. Un biologiste Canadien, Michel Sarrazin.
Quebec, 1927, 291 p.
- Webster, H. T. The physician and the family.
Cincinnati, 1927, 160 p.
- Weixberg, E. Your nervous child.
New York, Boni, 1927, 178 p.
- Westphal, K. Über die Entstehung des Schlaganfalles.
Leipzig, Vogel, 1926, 109 p.
- Woollacott, F. J. The nursing of infectious diseases.
London, Faber, 1927, 228 p.
- Wu Lien-Teh. A treatise on pneumonic plague.
Geneva, League of Nations, 1926, 466 p.
- Wyard, S. A handbook of diseases of the stomach.
London, Oxford Univ. Pr., 1927, 387 p.
- Yearsley, Macleod. A manual of the electrophonoid method of Zünd-Burguet for the treatment of chronic deafness.
London, Heinemann, 1927, 108 p.

ANNOUNCEMENTS

The *Paris Thèses* have been received in the Library and are now fully catalogued and available for the use of Fellows.

At the stated meeting of May 19, Dr. John A. Hartwell was nominated for the office of Trustee to fill the unexpired term of the late Dr. Walter B. James. Election will take place at the stated meeting of October 6.

There are quite a number of photographs and other portraits of doctors in the collection of the Academy which cannot be identified. The Librarian would be grateful if the Fellows—with good memories for faces—would ask to see them and help in this matter.

HOSACK BED FOR SICK AND NEEDY PHYSICIANS

Attention is directed to the following extract from the will of Mrs. Celine B. Hosack:

“I do give and bequeath unto my executors, hereinafter named, the sum of Ten Thousand Dollars, in trust, to apply and pay the same (or so much thereof as may be necessary) to The Roosevelt Hospital in the city of New York, to purchase a bed which, in memory of my husband, shall be known as the Hosack Bed, and which shall be occupied from time to time by such sick and needy physicians as may for that purpose be named or designated by the President and Treasurer for the time being of The New York Academy of Medicine.”

DONATIONS TO THE LIBRARY FUNDS

Donations and bequests are solicited by The New York Academy of Medicine for the maintenance and expansion of the Library.

A donation or bequest of \$5,000 or more will provide for a special library fund, the income of which may be used for the general purposes of the Library or restricted to the purchase of books and periodicals, as the donor or testator may indicate.

FORM OF BEQUESTS

The following is a brief legal form as a suggestion under which bequests may be made in behalf of the Academy:

I give, devise and bequeath unto “The New York Academy of Medicine” of the City of New York, State of New York, a corporation duly incorporated by the legislature of the State of New York by an act, entitled “An Act to Incorporate The New York Academy of Medicine,” passed June 23, 1851, and amended June 4, 1853, June 2, 1877, and April 24, 1925.

DEATHS OF FELLOWS OF THE ACADEMY

VIRGIL PENDLETON GIBNEY, A.B., A.M., LL.D., M.D., 65 Park Avenue, New York City; graduated in medicine from Bellevue Hospital Medical College in 1871; elected a Fellow of the Academy, March 1, 1877; died, June 16, 1927. Dr. Gibney was a Fellow of the American Medical Association, a Fellow of the American College of Surgeons, a member of the American Orthopedic Society, and the Pathological Society. He was Surgeon-in-Chief to the Ruptured and Crippled Hospital, Consulting Surgeon to the Neurological Institute, Montefiore Hospital, St. John's Guild, St. Agnes's Hospital, White Plains Hospital, St. Vincent's and Bridgeport Hospitals.

ANTONIO STELLA, A.M., M.D., 214 East 16th Street, New York City; graduated in medicine from the University of Naples, Italy, in 1893; elected a Fellow of the Academy, February 2, 1899; died, July 2, 1927. Dr. Stella was a Fellow of the American Medical Association, a member of the National Tuberculosis Association, and a member of the Tuberculosis Association. He was also Consulting Physician to the Manhattan State and Italian Hospitals, and Visiting Physician to Columbus Hospital.

THE NEW YORK ACADEMY OF MEDICINE

VOL. III

SEPTEMBER-OCTOBER

Nos. 9, 10

PROTEIN STIMULATION (LOCAL DEATH) AND PROTEIN THERAPY

“Natural potencies within us are the true healers of diseases.”

Hippocrates. Epidemic Diseases, VI, 5, 81.

About 1873-5, over fifty years ago, the great pathologist, Carl Weigert, stated that a local necrosis at some part of a living organism will, as a rule, result in heightened functional activity, usually in excess of requirements of repair, if the initial injury be not too great.¹ This is Weigert's law, or as he termed it, his Siva-theory, after the Hindu god of destruction, whose consort is Kali. In 1880 (Ges. Abhandl., I, 23) Weigert defined this initiatory necrotic activation of tissue repair as a “partial death” (*Partialtod*), an old idea of Bichat's, revamped by Richard Hertwig (1906), with reference to the periodic dissolution of the nucleus and similar regenerative phenomena inside of protozoan cells. Through this view of “local death,” as the initiator of a regulative process tending to repair and ultimate healing (necrobiosis), Weigert came into somewhat footless conflict with Virchow, whose theory of a formative stimulus was only another concept of the same thing. If a living organism or process is to be repaired or renewed, something about it has to die. As a phase of divine philosophy, this principle might be generalized to n dimensions, from the famous *stirb und werde* of Goethe to the causes of the growth and decay of nations or the laws governing the conservation and dissipation of energy

¹ Weigert: Jahresh. d. schles. Gesellsch. f. vaterl. Cultur 1873, Breslau, 1874, LI, 140. Ges. Abhandl., Berlin, 1906, pt. 1, 12; 16. Pfüger, in 1877, expressed the idea naïvely as follows: “Injury is the incentive to removal of injury.”

(maximum entropy) throughout the universe. In 1885, the psychiatrist Richard Arndt, in considering the causation of neurasthenic states, gave, without intention, a new slant to the conditions governing the reparative process by the following generalization: Weak stimuli accelerate vital activities; strong stimuli inhibit them; maximal stimuli suppress or utterly destroy them; or, in plainer English, to overdo is to undo. This generalization, the very essence of the Hippocratic "Healing Power of Nature" (*non nocere*) and implicit, from the start, in the use of poisons as remedies, was then tried out in the pharmacological laboratory upon yeast by Hugo Schulz (1887-1925), and latterly upon plants by Czapek, with the inevitable fatalistic series of consequences, *viz.*, stimulation, paralysis (narcosis), *exitus letalis*. The principle is now known as the Arndt-Schulz law, but certain glaring exceptions have discredited its universal application, and it is best regarded as a convenient rule or corollary, deriving from Weigert's law. But exceptions often prove a rule, and the validity of the principle has been pretty thoroughly confirmed in such experiments as those of Strangeways and Oakley on Röntgen irradiation of tissue cells *in vitro* (1924), Dalq on the effect of hypnotic solutions on the maturation of sea urchin eggs (1924), Child on regeneration in marine organisms (1924), Haberlandt and Bier on wound-repair in vegetable and human tissues (1921), or Arndt's own subsequent work on the origin of giants and dwarfs and the rationale of degeneration and regeneration (1892-5). In the light of Professor Bier's recent defense of homeopathy (1925), or of the well-known principle that concentration is unfavorable to chemical action (*corpora non agunt nisi soluta*), the Arndt-Schulz "law" acquires some of the commonplace implications of "a self-evident fact stated in a novel manner." It becomes more and more obvious that the real service of Hahnemann to medicine was to stress the *milde Macht* of Goethe, that nature is *maxima in minimis*, that mild remedies and small doses are usually the most efficient.

The whole theory of sensitization of the tissues by the injection or juxtaposition of foreign proteins grew up around the treatment of bacterial infections by specific sera and vaccines. In the early nineties, following the introduction of Koch's tuberculin (1890), Behring's antitoxin (1890) and the vaccines

against typhoid (1888-96), it began to be perceived that, in some cases, such remedies had apparently beneficial effects in other specific infections. Thus, in 1891, Buchner showed that Koch's tuberculin may do some good in other diseases and maintained that its therapeutic effects, if any, are due, not to its specific bacterial derivation, but to the proteins it contains. In 1893, when Fränkel reported on 57 cases of typhoid benefited by injections of Eberth bacilli, Rumpf produced cases benefited by pyocyaneus vaccines. The *furor* over the success of the diphtheria and tetanus antitoxins obliterated these findings, which had also been negated by other observers. Meanwhile, the tuberculins had been analyzed by Kühne (1891), and in 1895 Matthes and Krchl began to experiment with these protein split products. They found incidentally that reactions, similar to those from tuberculin, may be obtained with other proteins, notably deuterioalbumose and milk. A decade later, Lüdke and Holler were treating typhoid fever on a large scale with intravenous injections of albumose (1915), Schmidt and Saxl had begun the treatment of different infections with parenteral milk injections (1916), Jobling and Peterson were treating typhoid with intravenous proteoses (1916), which were injected with success in arthritis by a number of American experimenters, from Miller and Lusk (1916), to Ralph Pemberton (Army cases, 1920). Before all this had come to pass, Wagner von Jauregg had proposed that general paralysis be treated by intercurrent infections (1887), Terc had tried the effect of bee stings in rheumatism (1888), Fochier had treated pyogenic infections by producing artificial (fixation) abscesses (1891-2), W. B. Coley got striking results with erysipelas toxins in sarcoma (1893), Gilbert had introduced autoserotherapy (1894), Horbacewzki nuclein injections (1894), Petterson the leucocyte extracts (1905-6), Crédé collargol and colloidal metals (1906), Beard trypsin therapy in cancer (1911), Schafer the polyvalent brew later commercialized as "phylacogens" (1911), Renaud the treatment of infections with irradiated typhoid vaccines (1911) and Vaughan had experimented with the protein split products (1913).² Thus arose

² For details of this history see the book on "Protein Therapy and Non-specific Resistance" (New York, 1922) by Dr. William F. Petersen (Chicago), which has been translated into German.

the theory of "non-specific therapy," in contradistinction to orthodox specific therapy with sera and vaccines, the very foundations of which seemed to be shaken by the puzzling fact that the self-same reactions could be produced in the system by injections of protein products, hypertonic saline solutions or even plain water; while most "specific" sera and vaccines were apparently paraspecific (virtually polyvalent) on occasion. When, in 1917-19, Wagner von Jauregg began to treat general paralytias by inoculation of tertian malaria, and Plaut got similar effects by superinfection with relapsing fever (1921), it became apparent that the basic idea was something as old as the hills. For the incompatibility between epilepsy and quartan fever and its disappearances after malarial infection had been known even to the Hippocratic School (*Epidemics*, vi, 6, 5). Non-specific therapy was, therefore, either "relatively specific," with reference to paraspecific reactions (polyvalence) of individual sera and vaccines, or effected its results by stimulating the defensive mechanisms of the body *via* stimulation of heat-regulating centers (Paltauf, 1915), desensitization (von Groer, 1915), "omnicellular plasma-activation" (Weichardt, 1919), selective stimulation (Döllken, 1919), acceleration and inhibition of inflammation (Starkenstein, 1919) and so on. Whatever the mechanism, local or general, the process has obviously some likeness to the revulsive or alterative effects of such old remedies as bloodletting, the seton, the moxa, acupuncture, vesication, Baunsehcidism (needling), massage, inunction, antimony cups, quassia cups, mineral waters (radioactivity), Junod's haemospasia (giant cupping or bloodletting without letting blood), the alterative effects of mercury, arsenic or iodides, the *bouleversement* in sea sickness, or even H. C. Wood's way of treating a cold: take a violent emetic, then a warm bath, then a champagne and oyster supper in bed.

In the case of non-specific injections, the reaction is always the same, *viz.*, initial chill, fluctuating rise of temperature, increased pulse-rate, temporary decline of blood-pressure, increased leucocytosis, increased glandular activity, accelerated metabolism (nitrogen), increase of enzyme production and of immune substances, with the well-known focal (*Herd*) reaction or inflammatory area at the site of injection. Nausea, vomiting, headache,

delirium and other untoward symptoms are to be regarded as the effects of too liberal dosage. The stimulation of local cellular activity has been attributed to the catabolic products of the injured cells, which Guthertz labels provisionally, necrotines or metabolines,³ to the breaking down of the parenteral (injected) protein, to change of ion partition (acid-base equilibrium), to disturbance of ferment-antiferment balance (Petersen), and so on. Whether the starting point of these changes be the liver or the whole reticular-endothelial system, the essence of the process is an indirect stimulation or revulsion. In the face of a certain percentage of striking results in typhoid fever, the arthritides, gonorrhœa, the communicable diseases, asthma, neurosyphilis, diseases of skin and the eye, there have been many fatalities, particularly in malarial superinfection against neurosyphilis and in the use of krysolgan and sanoerysin in phthisis. In the view of prominent German hospital clinicians, the method, if pursued haphazard by private practitioners, is fraught with the danger of reducing the patient to the level of an experimental laboratory animal, and in actual laboratory experimentation there have been salient and significant discrepancies. There is, to begin with, no agreement whatever between the animal and human findings. After parenteral protein injections, guinea pigs fever readily, dogs and humans moderately, rabbits little, if at all. There is marked difference in animal and human reactions in diphtheria, typhoid and cholera. Results are dubious in tuberculosis, negative in tetanus. The inflammatory reaction is diphasic or Janus-faced (Wolff-Eisner). The focal reaction of tuberculin may be produced by a variety of agents, while many non-tuberculous processes respond to tuberculin. Toxic doses of foreign proteins are always dangerous, often fatal, and the correct threshold dose is difficult to estimate offhand and varies in different individuals. The method collapses wherever one man's meat may be another man's poison. It takes two to make a cure, the patient as well as the remedy. The whole duty of the bedside practitioner is not to make a *Versuchsthier* of the patient, but, in the words of Trudeau, "to heal sometimes, to alleviate often, to comfort always." In this

³ S. Guthertz: *Der Partialtod*, Jena, 1926, *passim*.

view, protein therapy, in its present tentative phase, acquires the polychrome, multifarious aspect of the older pharmacopœias or of the vagaries of homeopathy. Polypharmacy and panaceas are still liable to the sarcasm of the old Halle clinician: "We seem to be standing before the booth of a mountebank." The merits of protein therapy, however, are its possibilities of extreme delicacy in plan and execution. Gordonoff activated a stopped heart with a single drop of chlorophyll (1925-6). Loeb activated the unfertilized ovum to parthenogenesis with nucleic acid. It is said that a deviation in the hydrogen-ion concentration of the blood no greater than that between tap water and distilled water is fatal. Injection of haematoporphyrin in man is so potent in its photodynamic effect that it may kill even on a cloudy day. Freund found that injection of a rabbit's own defibrinated blood into the animal directly after coagulation is invariably fatal (1921). A quarter of an hour later, the result is different. Walbum found that manganese is specific for staphylococcus infection in rabbits; that mice poisoned with ratin may be immunized by caesium and iridium in certain concentrations; while aluminium and manganese are most effective in tuberculous guinea-pigs (1925). Bier, in his enthusiasms over Hahnemann, got isopathic effects by small ether injections in ether-bronchitis and latterly in other bronchitides. The efficiency of sulphur, in boils and cutaneous staphylococci, he attributes to its capacity to stimulate the skin to repair its own troubles. Schulz has evolved a special pharmacotherapy based upon minute dosage. Protein therapy, like specificity in dietetics, is yet in its infancy. The crux of the matter is the specific reaction of the individual patient to the threshold dose and here the Bichat-Weigert principle, with the Arndt-Schulz corollary, may serve as a guiding principle through this particular maze of modern medicine.

F. H. GARRISON

PAPERS DELIVERED AT STATED MEETINGS
THE PATHOLOGY AND NEUROLOGIC SYMPTOMS IN
PERNICIOUS ANEMIA

(Abstract)

ISRAEL STRAUSS

(Delivered before The New York Academy of Medicine, April 21, 1927)

The pathologic process which is observed in the central nervous system in cases of pernicious anemia is a degenerative one. It consists essentially in a demyelination of nerve fibers associated with or resulting in a breaking down of the axones. The process commences in small foci which later coalesce, and results in secondary degeneration of the fiber tracts. The first site of the process is usually either the lumbo-sacral segments or the upper cervical segments of the cord. Later on the middle cervical and dorsal segments are affected. The posterior columns and lateral columns of the cord are most affected. The direct cerebellar tract is likewise involved. It is rare that the gray matter in the cord shows any material affection.

Pathologic changes have been found in the brain. They consist of areas of rarification, foci demyelination, and of slight changes in the ganglion cells. They are not as extensive or as pronounced as are the changes in the spinal cord. These changes are believed to be due to the influence of some toxin which makes itself felt through the circulation. They are not secondary to changes in blood vessels. It is unknown why the process selects the region of the cord above mentioned so exclusively.

Pernicious anemia is not the only disease in which this pathologic process occurs. It is found in other anemias, which are classified as secondary. It also occurs in the anemia produced by *Bothriocephalus latus*. Occasionally severe and prolonged cachectic states due to carcinoma produce the above changes. They have also been described in leukemia, although here the leukemic infiltration of the blood-vessels may be a factor in their production. It is not infrequently found in diabetes. It has been

described in cases of chronic alcoholism and has been observed in pellagra. Therefore neither the process nor the symptoms arising can be regarded as diagnostic of pernicious anemia.

The neurologic symptoms are such as would be expected from interference in function of the parts involved:

I. Posterior Column Symptoms:

1. Atony.
2. Loss or diminution of tendon reflexes.
3. Ataxia.
4. Disturbance in vibratory and joint sense.
5. Parasthesiae.
6. Girdle sensation.
7. Bladder.

II. Lateral Column Symptoms:

1. Increased tonus—spasticity.
2. Increased reflexes.
3. Pathologic reflexes (a) Babinski.
(b) Clonus.
(c) Loss of abdominal reflexes.
4. Motor weakness—paralysis.

III. Posterior and Lateral Column Symptoms:

Depends upon the level at which they are most affected, the time in the process when they are involved and the extent of their affection.

Example:

1. Spastic—ataxic paraplegia.
Clinical picture of pyramidal tract plus ataxia.
2. Tabes syndrome plus motor weakness rigidity plus pathological reflexes of pyramidal tract (Babinski-clonus).

Early symptoms are usually parasthesiae in the extremities and the tongue, ataxia of the lower extremities and disturbance of vibratory sensibility. The symptoms may antedate the appearance of the typical blood picture of pernicious anemia for a period extending from months to years. There may be remissions of symptoms in the early stages. The weakness in the extremities is very frequently a pronounced symptom. This may go on to a paresis which compels the patient to be bedridden. Under
... less may improve considerably. When, how-
e process in the spinal cord is far advanced,
e in the objective neurologic symptoms even

though the blood shows only slight changes. The same is true in regard to those cases where the condition of the blood has been improved by treatment. Minor and Murphy, in a recent article on the influence of liver diet, showed that the blood had become normal and that the neurologic symptoms had not improved. It is said that the neurologic symptoms occur in from 50 per cent. to 75 per cent. of the cases. They are very frequently overlooked because the physician is not on his guard to detect their early appearance or is not familiar with the technique of neurological examination. Occasionally no neurologic symptoms have been observed and yet microscopic examination of the cord has shown that the changes are present.

Mental symptoms in pernicious anemia occur occasionally, and the clinical picture is said by some to be characteristic of the disease. They are, however, not of frequent occurrence.

COMMENT ON TROPICAL DISEASES OF INTEREST IN NEW YORK CITY—A BRIEF REVIEW

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(Delivered before The New York Academy of Medicine, May 5, 1927)

Diagnosis, under all circumstances, is admittedly a difficult art, and the practitioner in the City of New York cannot well afford to dismiss from all consideration the entire list of diseases which are called tropical because he may deem them foreign to his practical interest.

"Tropical diseases" is a more or less elastic term. It does not imply diseases which are strictly peculiar to the tropics, nor could it possibly mean all diseases which prevail in the tropics. Few diseases are strictly confined to tropical latitudes, and the practitioner in the tropics in his daily life finds himself confronted for the most part with problems very similar to those which confront the practitioner in more temperate latitudes.

The term in general is taken to include those diseases which from one circumstance or another are especially prevalent in warm climates.

When one takes into consideration, however, the large population group which comprises New York City, with its admixture of foreign elements, and its constant and varied connections through the shipping of the port with all parts of the world, the possibility of encountering certain tropical diseases is almost inevitable. With the development of ease and facility in transportation, this becomes all the more likely, especially in view of the fact that the southern United States itself is at least subtropical, and furnishes not a few of the well-known tropical diseases.

It is not altogether easy to determine just which of these diseases may be important in New York City. Mortality statistics are of little help, and there do not appear to be any published hospital statistics of special value in this connection. However, from the opinions of men with wide hospital experience in the city, and the judgment of certain writers on tropical medicine, we may, I think, make a fair inference as to the tropical diseases which the practitioner in this latitude is most likely to encounter and with which he should have some familiarity.

The modern developments of medicine make such a heavy demand upon the time of the practitioner that he is naturally inclined to discard as of little practical interest those diseases which he feels are unlikely to be met in his daily work. Moreover, tropical medicine with its numerous parasitic affections leads into the somewhat complicated field of medical zoology, the by-paths of which appear uninviting and time-consuming.

It is unlikely that with all the resources of a good hospital the diagnosis of tropical disease would long be overlooked, but, to the practitioner who cannot always avail himself of such facilities, the lack of such knowledge may lead to grave errors in diagnosis; and indeed instances are not wanting where such errors have occurred even in good hospitals.

In diagnosis, it is a safe rule always to look for the more common thing rather than the unusual, and it is an equally safe rule to inquire with some care into the history of a patient before venturing a diagnosis. It would certainly be unsafe in most cases to risk a diagnosis of some tropical affection in the person of an individual who had not visited warm climates.

It may be mentioned that the Public Health Service carries on in this and other ports of entry three important functions,

namely, quarantine examination of all vessels arriving from foreign ports, the medical examination of arriving alien immigrants, and the medical care and treatment of a large number of seamen of the American merchant marine. An officer engaged in these duties necessarily comes into contact not infrequently with tropical disease.

In the examination of vessels, the diseases classed as quarantinable are cholera, yellow fever, smallpox, typhus fever, leprosy and plague. These diseases may for the most part be classed as tropical, and since no quarantine is absolute and could not be so made except at prohibitive cost, there is always the possibility of the introduction into the port of quarantinable disease.

The prompt diagnosis and report of such under the circumstances would then be a service of great value. On the other hand, the mistaken diagnosis of quarantinable disease may sometimes be a distinct disservice, since, after report, it will appear on the bills of health issued to vessels sailing from this port and may result in their unnecessary quarantine detention at port of arrival.

My purpose, then, is to direct attention to the fact that certain tropical diseases may not be foreign to the practical interest of the medical man in temperate climates, especially if he is located in a large port; and that to carry "in the back of one's head" some working diagnostic knowledge of the more common of these diseases may at times prove very useful to one's self and perhaps beneficial to one's patients.

With this end in view, I am submitting a brief comment on certain salient features of those tropical diseases believed to be most commonly met with here.

Among the protozoal infections there are two of importance, both of which are really endemic in this state. These are *malaria* and *amebiasis*.

It may seem strange to discuss malaria, but nothing has so impressed me as the inability of a doctor to appreciate the gravity which this disease may at times assume, if he has had practical experience only with its milder manifestations commonly seen in temperate climates.

An experienced officer of the Public Health Service reported some years ago the boarding, in quarantine work off the coast of

Florida, of a small schooner from the West Indies. Among the crew of eight men, six lay dead, stricken at their daily task, and the other two were so desperately ill that they had barely survived to navigate the vessel to port through calm weather. This was malaria in its most malignant form.

The milder benign tertian and quartan infections seen in temperate climates give no indication as a rule of the phenomena observed in infections with the malignant tertian parasite which are so common in warm climates, and fatal errors in judgment are all the more distressing in a disease for which we possess a ready means of diagnosis and a specific remedy.

It should be recalled that visitors to warm climates may acquire an infection and show no evidence of it till their return to temperate latitudes, when they will at once develop a malarial attack. This is a common history.

It must also not be forgotten that severe manifestations of malaria do not permit any expectant plan of treatment. They demand immediate attention and prompt administration of quinine.

In symptomatology, one must recall also that tropical malaria may be totally wanting in the periodic chill, fever and sweat. It may be acute or chronic, atypical, in many ways simulating a variety of diseases, and above all it may suddenly assume a pernicious type of the utmost gravity.

The disease has the property of latency, and infections acquired in warm climates may not show activity for a long period of time. This suggests the caution also that the finding of parasites in the blood is no confirmation that the active disease from which the patient may be suffering is necessarily malaria.

The cardinal points in diagnosis are fever, which usually displays a certain intermittency in its course and a certain periodicity in its recurrence, anemia, enlarged spleen and parasites in the blood. Parasites are at times difficult to find, especially if quinine has been administered. It may be added that any fever which resists quinine in full doses for two days or more is not likely malaria.

As for treatment, in severe manifestations the administration of quinine by the intramuscular or intravenous route must be considered. In the treatment of any case of malaria, especially

in view of possible relapses, one should not forget the standard of the National Malaria Committee, which advises for the acute attack 10 grains of quinine sulphate by mouth three times a day for a period of at least three or four days, to be followed by 10 grains each night before retiring, for a period of eight weeks.

Finally, when we possess a reliable and simple method of accurate diagnosis, it would seem a slovenly habit to prescribe quinine without first making use of that method, and it is a habit not without danger.

Although rarely seen here, mention should be made of a condition known as Blackwater fever, which, though of disputed etiology, has of late years by common consent been accepted as a manifestation of malaria. It is more common in those who have spent some time in malarious regions and have suffered several attacks of malaria. The integrity of the red blood-cells becomes impaired, and following a dose of quinine, undue fatigue, too much exposure to the sun, or a chilling of the body surface, there occurs extensive lysis of the red cells, accompanied by a prostrating chill, early jaundice and the passage of porter-colored urine—hemoglobinuria.

The condition is a serious one, and although of malarious nature, the administration of quinine is not always advisable. The remedy must be used with caution backed by nice judgment.

The other protozoal infection mentioned—amebiasis—gives rise to two clinical conditions of so much importance that usually they are described separately as amebic dysentery and amebic abscess of the liver. These are, however, only incidental in the evolution of the infection.

There are several varieties of ameba which occur in the intestinal tract of man as harmless commensals. The pathogenic variety is the *Entameba histolytica*. The infection occurs primarily in the intestinal tract. The normal habitat of the organism is the mucous membrane of the large intestine. It is a true parasite and lives at the expense of its host. In most cases a biologic equilibrium is established between host and parasite and the host becomes simply a carrier, without apparent disturbance of his health. In the carrier state, the organism is discharged in its encysted, infectious form.

If the equilibrium is disturbed, the parasites damage or destroy the tissues to such an extent as to produce pathologic effects, and the illness takes the form of an ulcerative colitis. The patient then suffers from amebic dysentery, or under more favorable circumstances, simply an amebic diarrhea.

Under unfavorable circumstances, the ameba through the portal circulation may invade the liver, where it produces inflammation and perhaps ultimately abscess formation. Rarely the organism may go further and produce abscess of the lung or brain, or involve other tissues.

It is to be noted that the carrier discharges the encysted form of the parasite, which is the infectious form, and the carrier state is responsible for the transmission and propagation of the infection.

The condition known as amebic dysentery is an important member of the dysentery group. The term dysentery designates a syndrome of small, frequent mucous or muco-sanguinolent stools accompanied by tenesmus and griping pains. The classification of the dysenteries is based largely on etiology. Amebic and bacillary dysentery comprise the two important members of the group.

In diagnosis it may be recalled that amebic dysentery is distinguished from the bacillary form by more insidious development, greater chronicity and, as a rule, an afebrile course. Ultimate diagnosis must be established by the demonstration under the microscope of the *Entameba histolytica*.

In the treatment of amebic dysentery, ipecac in one form or another has for a long while held an important place, and deservedly so. It may be added that ipecac is not a harmless remedy, and for the avoidance of serious and unpleasant consequences it must be used with discrimination.

The other important episode in the evolution of amebiasis is abscess of the liver, a grave and not infrequent condition, which in the hands of even experienced clinicians is often either overlooked or mistakenly diagnosed.

The clinical picture is characterized by insidiousness, with or without previous history of dysentery, more or less indefinite local signs and symptoms, septic fever, loss of flesh, a curious, yellow, muddy tinge to the skin, coated tongue, general listlessness, moderate leucocytosis and a prolonged and chronic course.

There is enlargement of the liver, which, if it occur upward, may be detected by the X-ray. Diagnosis may be confirmed by aspiration of the liver, which should not be too much delayed. Unlike aspiration of the spleen, it is a comparatively safe and harmless procedure. The appearance of the pus is more or less distinctive. If pus is found, it must be drained at once.

In treatment, mortality from the open operation is high. It has been greatly reduced by a coincident treatment with emetine.

Beri-beri, *pellagra* and *sprue* form another tropical group traditionally classed together by reason of an alleged etiologic relationship to faulty diet, which relationship in the minds of many is not yet determined.

Beri-beri is especially common among the rice-eating peoples of the far east. It is a multiple neuritis involving not only the nerves of the extremities but also the vagus and vasomotor nerves.

Clinically it appears in several forms, a wet or dropsical form, a dry or paraplegic type, or a mixed type. The involvement of the vagus makes sudden death from acute failure of the heart one of its striking characteristics. Cardiac disturbance with fatal tendency may develop suddenly in the mildest cases. There is naturally great variation in symptomatology.

In beri-beri literature the term "ship beri-beri" is applied to the disease developing among crews of vessels, usually during a long voyage, and most commonly on sailing vessels. This condition is believed by some to be more closely related to scurvy in that more prompt recovery is said to take place when the patients are placed on a full, balanced ration, and it is also stated that there is less degenerative involvement of the nerves.

There is also an infantile beri-beri which in the orient is of importance.

Pellagra is very common in the southern United States, but cases are uncommon in New York City. It is unlikely that such cases would be diagnosed in the absence of the characteristic skin eruption which is seen in this disease, although the disease may exist without this distinctive skin lesion.

The skin rash of pellagra is pathognomonic and is characterized generally by the occurrence of an erythema on exposed body surfaces, most frequently on the backs of the hands and wrists, the face and the back of the neck. The eruption is characterized by

its symmetry, sharply defined borders and its color, which, at first, is red like a sunburn but later assumes a violaceous tint and finally a deep sepia brown. This eruption goes through a regular process of evolution which lasts a few weeks. With the eruption, as a rule, will be found gastro-intestinal and nervous disturbances. The gastro-intestinal disturbances will be sore mouth, indigestion and diarrhea, and the nervous manifestations are varied, chiefly depression, anxiety, sleeplessness and hyperesthesias.

Sprue, or tropical sprue, is not infrequently seen. It is a peculiar and dangerous form of chronic catarrhal inflammation of the whole or part of the mucous membrane of the alimentary canal. Although a disease of warm climates, it may develop for the first time in temperate climates in individuals who have previously resided in warm climates.

Its diagnosis rests first upon the peculiar condition of the tongue, which shows superficial erosions, patches of congestion, minute vesicles and a general redness with frequently the appearance of fissures. This condition is also noted on the general mucous membrane of the mouth. This is accompanied by dyspeptic distension of the abdomen and a morning diarrhea with rather characteristic stools which are semi-solid, yeasty, copious and lacking in color.

Among the important bacterial diseases may be mentioned *tularemia*, *Malta fever*, and possibly *plague*.

Tularemia is a new disease and is classed by writers on tropical medicine among tropical diseases. Its description is just beginning to find its way into the text-books.

Its prevalence is, of course, unknown, but cases have now been found quite widely in the United States. It is due to the bacillus *tularensis* and, like plague, seems to be primarily a disease of rodents, conveyed to man by an infected blood-sucking fly or tick. The rodents which have been most responsible for its transmission are wild rabbits and hares, although it occurs in ground-squirrels and wild rats.

It is striking that a number of cases have occurred among laboratory workers handling cultures of the organism or animals infected with the same, the means of the transmission not being thoroughly understood.

Clinically there are recognized four types, the ulceroglandular, the oculoglandular, the glandular and the typhoidal. In the ulceroglandular and oculoglandular, the site of the inoculation is obvious. In the glandular type and in the typhoidal type, the point of entrance of the infection is not apparent.

The onset is sudden with headache, vomiting, chilliness, bodily aching and prostration. The lymph glands draining the region of the point of inoculation are enlarged, tender and frequently proceed to suppuration. There is a continuous fever, with some remissions, for two or three weeks and a moderate leucocytosis. Sometimes a skin eruption is noted which is macular, papular or pustular. Convalescence is slow. Recovery usually takes place and death is rare.

The diagnosis depends in large measure upon the history of the case, with the assistance of a primary lesion on the skin or in the eye, persistent glandular enlargement, fever, and the development in the patient's serum of an agglutination reaction to the specific organism during the second week of the illness. There is no specific treatment.

Malta, or undulant, fever, in accordance with good observers, may be encountered now in almost any part of the United States.

An endemic focus of the disease exists in the southwestern part of the United States. Moreover, recently evidence is not lacking that an organism, *Brucella abortus*, which is the cause of contagious abortion in cattle, is very closely related to, if it be not a possible variety of, the organism which causes Malta fever, *Brucella militensis*. Cases which symptomatologically coincide with Malta fever have been reported in the United States, due to infection with the *Brucella abortus*. Clinically, therefore, in the literature we now see descriptions of infections of the *militensis-abortus* group. This has raised a question as to whether the disease may not be spread in cow's milk as well as by its usual mode of transmission—the milk of goats.

Malta fever like any other infection may, of course, assume mild or severe forms. Its mortality is not high but it is a prolonged disease with a very slow convalescence. In its most common form it is characterized by marked waves of intermittent fever of variable length and intensity, separated from one another by periods of temporary absence of symptoms. It is a disease

characterized by a series of febrile attacks with accompanying phenomena. These attacks may be repeated many times and the disease may be much prolonged. As stated, convalescence is slow.

The organism of Malta fever offers peculiar hazards to laboratory workers, and infection from this organism is not uncommon among those who handle it in their daily work.

There is no specific treatment for the disease. Vaccines have been tried but have not given brilliant results, although their use is reported to be of some advantage.

It is unlikely that a case of plague would come under observation, but, since during the past few years this disease has become very widespread over the earth's surface, it may be mentioned as rather exceptional that a port having such world-wide connections as New York City should have escaped this infection. There is a belief among sanitarians that for some reason, not fully understood, this disease will not spread in the port of New York, due possibly to some peculiar circumstance in the life history of the flea through which the disease is conveyed from rodents to man. Nevertheless, it would seem wise for any practitioner in a port of this size and character to bear in mind the possibility that he may some time meet with plague, most likely in its bubonic form, very unlikely in its pneumonic form. It may be added that the disease is endemic among the ground-squirrels of the Pacific Coast and human outbreaks have occurred on that coast.

There are two spirochaetal diseases which may be mentioned. These are *yellow fever* and *Weil's disease*, or infectious jaundice, neither of which is likely to be encountered in this city. There is a third disease, the etiologic factor of which is unknown, but which has been shown to be spread by certain species of mosquito, which, with more likelihood, might possibly be met with. This is *dengue*. This disease during the summer months is not uncommon in the southern United States, and during its prevalence persons may readily travel to this city during its incubation period, developing the disease in the city. It presents an acute picture of rather brief duration with practically no mortality. Its invasion is characterized by a chill or chilliness with fever, severe pain in the back and limbs, a rather typical facies and the later appearance of a polymorphous eruption. A marked leucopenia takes place in the first three or four days of the illness. The

facies of this disease is worthy of comment since it resembles closely that of yellow fever, and to a lesser extent that of the measles.

The four striking clinical characteristics of yellow fever are facies, early jaundice, early albuminuria, and later the want of correlation between temperature and pulse. The last three signs do not appear in dengue.

Typhus fever, the etiology of which is unknown, but which is known to be conveyed by the louse, would seem a disease of some importance to the practitioner of this city. It will be recalled that some years ago, Dr. Brill, of this city, called attention to a typhus-like disease which was endemic in New York and reported a large number of cases. This disease crept into the literature as Brill's Disease.

It may also be recalled that there is a well-known type of typhus fever which occurs in Mexico and goes by the name of tabardillo. Besides this, we have the European form of typhus.

There is a unanimity of opinion that all three of these diseases etiologically are the same disease, but in spite of this Brill's disease continues to preserve a sort of identity of its own, being very much milder in its manifestations, and differing somewhat from the others in its epidemiology.

For practical purposes, the practitioner is unlikely to meet with any form of this affection, except Brill's disease, and this may be encountered not infrequently. It is characterized by a temperature of from two or three weeks' duration and a rather distinctive rash. Its mortality is low and there is no specific treatment.

It is of interest to know that there is another disease endemic in the United States, the symptomatology of which closely conforms to that of typhus fever, but the etiology of which, though unknown, must differ because it is conveyed by a biting tick. This disease prevails rather extensively in the northwestern United States and is known as *Rocky Mountain spotted fever*. In some sections it is highly fatal.

Among the helminthic infections there is one of rather common occurrence, namely *uncinariasis*, or *hookworm*. This disease has been so much studied and so widely written about that it seems unnecessary to do more than simply call attention to it. It is a

chronic infection, very common in the southern United States and, of course, might be encountered at any time. Clinically it is characterized by anemia and attendant symptomatology and its diagnosis rests upon finding the ova in the stools. Treatment is effective if applied with judgment and persistence. There is an old world hookworm and an American species, which are distinct, but the symptomatology is the same.

As of possible interest it may be mentioned that there is another helminthic infection which is very common among Chinese immigrants. This is *clonorchiasis* or *liver-fluke* disease. The interest in this disease lies in the fact that a great many Chinese who come to this country are infected with this worm. For the most part, however, they have no symptoms of disease, the diagnosis being made by finding the ova in the stools. The question of importance has been whether such immigrants should be admitted to the United States, since, according to its life history, the parasite must undergo some phase of its development in a species of fish, so far unknown in this country. The regulations require at the present time that such cases should be deported, but under the circumstances and conditions the spread of the disease in this country would appear a remote possibility.

There is one disease of unknown etiology, called *climatic bubo*, which may be of some significance. These patients present a chronic inflammatory condition of the inguinal glands, obviously not due to any of the known venereal diseases, accompanied by a low-grade fever, with considerable periglandular inflammation, a prolonged course, and in about one-half the cases suppuration of the glands.

This infection is quite common in the West Indies and has for practical reasons received much attention from the medical officers of the United States Navy.

Ordinarily its etiology is regarded as unknown, but some naval medical writers are inclined to think that it may be venereal in its origin, and may represent some new venereal infection. Surgical treatment is not very satisfactory. The injection of foreign proteins and the use of antimony-potassium-tartrate intravenously have been highly recommended.

In conclusion, I may say that I have purposely omitted any consideration of tropical skin diseases, not a few of which may

be met with in the skin clinics of this city. Leprosy is, of course, fairly common in New York City and may be seen at many of the clinics, since the sanitary laws do not necessarily require isolation here. Yaws is very rarely encountered. There is an endemic focus of filariasis in South Carolina, but I am under the impression that the disease is seldom seen here. I might add that in patients from warmer latitudes various intestinal parasites are not uncommon and a microscopic examination of the stools of these individuals will often display evidence of them.

I have made no references to literature, but my indebtedness to standard literature is obvious, particularly the excellent manuals of Stitt, Manson, and Castellani and Chalmers, as well as the more extensive system of Archibald and Byam.

THE THYROID GLAND AND ITS RELATION TO DISEASE

DAVID MARINE

(Delivered before The New York Academy of Medicine, May 19, 1927)

There is no field of medicine where greater confusion and more nonsense exist than in connection with the real and fancied relations of the thyroid to various clinical syndromes on the one hand and the relations of these several clinical syndromes to structural alterations in the thyroid on the other hand. The truth of this statement is clearly demonstrated in the numerous classifications both clinical and anatomical that have arisen, particularly involving Graves's disease.

Regarding the relation of the thyroid to clinical disease there are many reasons and some justification for the formidable array of clinical terms now in use. The most important ones, however, depend on the highly variable symptomatology and on the fact that we know almost nothing regarding the nature of Graves's disease.

Regarding the relation of structural alterations in the thyroid to clinical manifestations there is no justification for the present

confusion. This confusion is due largely to the attempts to correlate clinical diseases believed to be due to the thyroid with structural alterations in the gland. This is quite impossible. Virchow pointed this out more than sixty years ago in the following words: "With reference to true goiter the opinion has long been held that it comprises a series of definite varieties (*struma hyperplastica*, *colloides*, *cystica*, *ossea*, *vasculosa*, *hemorrhagica*, *nodosa*, etc.) which can develop independently of each other. This is wrong. All these so-called varieties are only different modes of development of essentially the same form of goiter . . . and a large and striking variety of these metamorphoses may exist in the same goiter." Theodor Kocher in 1902 pointed this out in connection with Graves's disease and my own studies are in entire agreement with these observers. We believe that the thyroid has but one cycle of morphological changes. This cycle occurs in all animals with the ductless thyroid and has no necessary relation to the various clinical associations.

As regards the clinical classification of thyroid diseases even greater confusion exists. In addition to the purely clinical terms like simple, endemic, sporadic, physiologic, nodular, adolescent, toxic, hyperthyroidism, thyreotoxicosis, toxic adenoma, dysthyroidism and a host of others, we have still another group of terms—truly a grotesque admixture of clinical and anatomical conceptions—as, for example, toxic non-hyperplastic, toxic hyperplastic, non-toxic hyperplastic, non-hyperplastic non-toxic, etc. These particular terms were introduced by workers at the Mayo Clinic in order to evade designating any case as Graves's disease in which the thyroid was not actively hyperplastic. They vigorously supported this view for several years, which is summarized in their often-quoted published statement that given the condition of the thyroid one could predict the symptomatology and *vice versa*. Such a position was of course untenable.

If we disregard all the fictitious and artificial classifications that have been proposed and base our conception of the relation of the thyroid to disease on what is definitely known regarding the physiology, the chemistry and pathology of this gland, we would at least be on firm ground, although I am sorry to say our present knowledge falls far short of any definite understanding of the subject.

Basing our conception of thyroid diseases, therefore, on the physiology, chemistry and pathology of the gland, we have come to the following classification:

I. Thyroid insufficiencies—

(a) Simple goiter (endemic, sporadic)

(b) Myxedema

(1) Infantile (cretinism)

(2) Adult (Gull's disease)

II. Graves's disease.

In my opinion Graves's disease does not properly belong with the true thyroid diseases, but since the thyroid is an important factor in it and we lack the knowledge necessary for a more accurate classification, it is best to leave it here for the present.

Brief reference may be made to certain of the clinical features of thyroid diseases.

With reference to the thyroid insufficiencies the literature of the last ten years indicates that there are now no great differences of opinion regarding the essential features of simple or endemic goiter and myxedema, although quite within the memory of many of us the same confusion existed as exists to-day in relation to Graves's disease. Every one, I think, agrees that simple goiter is a work hypertrophy of the thyroid and is dependent immediately upon an absolute or a relative insufficiency of iodine. This of course leaves open the question of the remote, predisposing and possibly fundamental cause of the disease. It is now known that the thyroid will enlarge when the intake of iodine is below the normal body needs or when the body needs for one reason or another are so increased that the normal intake is for the time being insufficient. The former condition is seen more particularly in the great goiter districts of the world. The latter is seen in the so-called sporadic goiter occurring in association with various infectious diseases, pregnancy, abnormal diets and certain derangements of internal secretion (status lymphaticus, Addison's disease, acromegaly). Further, there is a general agreement both among internists and surgeons regarding the means of prevention and the limitations of treatment. No one would claim, however, that we are near a final understanding of this subject, and I have referred to simple goiter and myxedema mainly to

emphasize how a few facts, if they are crucial ones, can destroy concepts based on ignorance.

In contrast with simple goiter we know practically nothing regarding the fundamental disturbance underlying Graves's disease. It occurs spontaneously only in man, and this deprives us of one important means of approach which so materially aided us in simple goiter. Up to the present time it has not been completely reproduced in animals although there are suggestive studies in this direction. There are two prevailing theories: (1) That the disease is of thyroid origin, and (2) that the disease primarily depends upon a constitutional anomaly or defect which renders the individual's autonomic nervous control over various visceral functions susceptible of injury by a great variety of non-specific influences, such as fright, worry, over-work, the undermining of nutrition by infectious disease, etc. This constitutional defect may be congenital or acquired and appears to be closely related to that present in status lymphaticus and Addison's disease. Experimentally a symptom-complex related to Graves's disease can be produced in rabbits and cats by sufficient but sublethal injury of the suprarenal glands. In rabbits we have been able to obtain a definite increase in the metabolic rate, beginning from three to six days after suprarenalectomy and lasting from a week to several months, provided the thyroid gland is intact. This effect we have attributed to insufficiency of the cortex. During this reaction there is thymus regeneration which is also characteristic of Graves's disease. Such animals are hypersusceptible to a great variety of physical and chemical agents, just as in the case of Graves's disease. The well-known Goetsch test is an example of this hypersusceptibility, and while I do not believe that such a test is specific for or diagnostic of Graves's disease, it is highly probable that individuals manifesting hypersusceptibility to adrenalin have the constitutional anomaly or defect which underlies the development of Graves's disease.

Finally, I believe it is necessary to discard the view which seems to have gained wide acceptance in recent years, namely, that Graves's disease may be split up into several clinical entities, as for example, "exophthalmic goiter," "adenomatous goiter with hyperthyroidism" and "toxic adenoma." The protean symptomatology of Graves's disease has been emphasized for more than

fifty years, and from what we know of the disease it seems more rational to assume that the variations seen are dependent upon the variations in the activity of the visceral nervous system with the thyroid function remaining qualitatively unchanged, than to assume that all these clinical variations are dependent upon either qualitative or quantitative changes in the thyroid gland.

Since there is no morphological basis in the thyroid for thus splitting up Graves's disease, certain observers, particularly Plummer, have attempted to separate toxic adenoma from Graves's disease by means of the iodine reaction. His hypothesis assumes that iodine causes a drop in the metabolic rate in exophthalmic goiter because iodine completes an incomplete thyroxine, whereas iodine, according to him, does not lower the metabolic rate in case of so-called toxic adenoma. This hypothesis does not include all the facts. In the first instance a great many cases of Graves's disease with adenoma react with iodine with a temporary fall in metabolism, and in the second instance not all cases of Graves's disease without adenoma react with iodine. The phenomenon may have a simpler explanation than that advanced by Plummer, in that the fall in metabolism might be dependent upon the well-known involuting effect of iodine on hyperplasia. Iodine administration causes a rapid storage both of iodine and colloid in the follicles and a rapid involution of the hyperplasia. The stretching and distention of the follicles with colloid causes partial occlusion of the perialveolar capillaries and lymphatics and a pressure retention which temporarily blocks excretion until the thyroid cells have accommodated themselves to the increased pressure and until the vascular capacity of the alveolar capillaries is restored. In support of this view are the following facts: (1) Iodine administration does not lower the increased metabolism caused by feeding desiccated thyroid; (2) iodine does not materially change the metabolic rate in individuals with fully involuted thyroids; (3) iodine when given in small doses does not cause a rapid storage of colloid or a rapid fall in heat production; (4) the fall in heat production corresponds in time and probably in degree with the morphologic effects of involution of the hyperplasia; (5) desiccated thyroid does not cause a rapid fall in metabolism even in cases with hyperplastic glands; (6) cases with adenomatous hyperplasia which do not react to iodine

with storage and involution do not show a lowering in metabolism. The same temporary drop in metabolism can be produced in animals provided the gland is hyperplastic and large doses of iodine are used, and Martin has recently shown that a drop in heat production can also occur in simple goiter in man. The explanation, therefore, of the temporary drop in heat production seems to be that the sudden administration of large amounts of iodine causes a rapid storage of colloid with distention of the follicles, which in turn produces a pressure retention or inhibition of the secretory activity. Within about two weeks, however, the cells accustom themselves to this alteration and the metabolism rises again. The phenomenon erroneously known as "iodine thyroiditis" is an excellent clinical illustration of the effect of the sudden administration of large amounts of iodine to individuals with hyperplastic glands. The dangers that accompany the uncontrolled use of iodine in individuals with the anlage of Graves's disease are serious, and I hope Dr. Goetsch will emphasize this feature.

Summary

The thyroid gland appears to have but one morphological and physiological cycle, and it tends to repeat this cycle in response to stimuli for increased or decreased activity. The morphological and chemical changes observed are, therefore, not specific for any particular clinical syndrome.

There is sufficient evidence to show that Graves's disease is not a primary thyroid disease but depends upon the same constitutional anomaly or defect which renders the control of visceral functions through the autonomic nervous system inadequate.

The protean clinical manifestations of Graves's disease are more easily explained as dependent on variations in the activity of the visceral nervous system rather than that they are dependent upon either qualitative or quantitative changes in the thyroid secretion.

ABSTRACTS OF PAPERS DELIVERED AT
SECTION MEETINGS*Section of Orthopedic Surgery, April 15, 1927*FRACTURE OF THE FIFTH METATARSAL BONE WITH
SPECIAL REFERENCE TO DELAYED UNION

LOUIS CARP

Twenty-one cases of fracture of the fifth metatarsal bone will be considered to illustrate a tendency toward delayed union probably caused by poor blood supply. Knowledge of this tendency is necessary for prognosis and treatment.

In 1855 Breithaupt first described the condition known as "Fussgeschwulst." He noted that soldiers on the march were frequently disabled by painful, swollen and tender feet, and he attributed this condition to strained ligaments and tendons. Subsequently the condition was described under various other names, but in 1898 Kirchner first showed it to be a fracture by roentgenogram. There have been occasional references in the literature to slow formation of callus in some fractured metatarsals. Delayed union in some fractures of the fifth metatarsal could easily explain the picture presented in "Fussgeschwulst."

The fifth metatarsal bone consists of the base, tuberosity, shaft and head. It must be remembered that the tuberosity has a separate epiphysis which makes its appearance at about the twelfth year and is completely ossified at about the sixteenth. The muscle and ligamentous attachments to the base and the shaft play an important rôle in the production of fracture by indirect violence. The nutrient vessel of the fifth metatarsal is very small and is represented only by a few fine branches which anastomose with the small blood-vessels of the epiphyses.

The usual mechanism of fracture of this bone is by indirect violence, while its exposed position is a predisposing factor for its injury by direct violence.

An analysis of twenty-one cases from the Presbyterian Hospital given in the table shows the following:

1. Sex	Males	9 (47%)
	Females	12 (53%)

2. Age	Youngest	13 years
	Oldest	60 years
	Average	36 years

		Base	Tuberosity	Shaft	Distal extremity	Total
3. Violence	Direct	3 (38%)	1 (12%)	2 (25%)	2 (25%)	8
	Indirect	7 (61%)	2 (18%)	1 (9%)	1 (9%)	11
	Doubtful	2 (100%)				2

4. Predominant symptoms and signs—pain, swelling, ecchymosis and tenderness.

5. Length Disability (16 cases)	Shortest	2 weeks
	Longest	24 weeks
	Average	10 weeks

6. Females tend to have a longer disability than males.

7. The end results are good.

A further analysis of the twenty cases in adults shows that there were five cases which from clinical and X-ray evidence had delayed union. This occurred four times at the base and once at the distal extremity of the shaft. All the other cases that could be followed had characteristic pain, tenderness and edema at and surrounding the area of fracture, which extended over periods of weeks or months. While it is true that soft part injury in association with the fracture might produce these symptoms for a short period, still interference with proper bony union is the most plausible explanation for the long disability.

One would expect in a long bone as small as the fifth metatarsal that enough union would take place in the cancellous portions in about ten days to prevent mobility of the fragments. In the cortical bone of the shaft normal calcification should occur in about three weeks. The callus may be scarcely visible in the X-ray, it may be excessive, or it may be long and thin. It must be remembered, however, that the time for the appearance of callus in the X-ray is variable.

The treatment recommended for fracture of the fifth metatarsal is immobilization of the foot and leg by means of a posterior moulded plaster splint, which will permit physiotherapy. If there is a tendency to delayed union, the administration of cal-

cium or cod liver oil is recommended. Scarification of the fractured end with a needle introduced through the soft parts in order to produce bleeding may be tried. Excessive trauma to demonstrate mobility of the fragments is to be avoided.

Summary

Twenty-one cases of fracture of the fifth metatarsal are reported, with their analysis. Twenty were in adults, and of these five showed clinical and X-ray evidence of delayed union. All the latter had a normal blood calcium and phosphorous and a negative urine and blood Wassermann. All the other cases that could be followed had clinical symptoms over such long periods that it is fair to assume some interference in bone repair. The main cause of this condition is probably the poor blood supply of this bone. The treatment is directed toward immediate immobilization and hyperemia. The experience from all these cases tends to show that too long immobilization produces bone atrophy which certainly cannot help bone repair. Weight bearing in a strong moulded plaster splint before one month, where possible, is suggested to overcome this bone atrophy. Between the 11th and 16th years, the epiphysis of the tuberosity is not to be mistaken for fracture.

Section of Ophthalmology, April 18, 1927

THE CULTIVATION OF LENS EPITHELIUM*

DANIEL B. KIRBY

It was proposed by Dr. John M. Wheeler that an original investigation be conducted into the nature of the cause of senile cataract and the possibility of its prevention and arrest by non-surgical means.

It was decided to approach the problem from a scientific rather than an empiric standpoint and to go back to fundamentals. A study of the developing lens in the living embryo and of the

* The reader is referred to the complete article in *Transactions of the American Academy of Ophthalmology and Oto-Laryngology*, 1926, page 136.

living cells of the lens offered possibilities. It was also thought that if the cells of the lens could be cultivated outside the body that here would be a new tool, a new standard for our investigation into the nutrition of the lens. If the study of the cause of cataract could be narrowed down to the life and death of a single cell derived from the lens, a great step forward would be taken. The single cell is not so simple, but it is far simpler than the complex lens organ.

Harrison discovered in 1907 that cells could be caused to migrate and divide outside the body. In 1910, Carrel devised an ingenious technique by which the method of tissue culture is becoming adapted to its main object, the study of the fundamental problems of physiology and pathology.

Conclusions

By a series of experiments, the author proved that:

1. It is possible to dissect out the lens of a five-day-old embryo chick in such a manner as to free it from all extraneous cells.
2. Lens epithelium, even at a very early stage, is contained within a capsule.
3. Lens epithelium, under proper conditions, will live, migrate, divide and multiply outside the body in primary explants.
4. An unmixed strain of lens epithelium can be propagated from a primary explant by successive sub-cultures. This strain can be utilized for controlled experiments on the nutrition of the lens cells.

TREATMENT OF THE COMMONER SYPHILITIC LESIONS OF THE EYE

J. G. HOPKINS

By the methods at present available it is possible that early cases of syphilis can be definitely cured. In a certain proportion of late cases also, the patient remains free from symptoms and negative in their reactions. It is therefore imperative to give all early and most late cases the treatment which offers the best prospect of a permanent arrest.

There is wide difference of informed opinion as to choice of drugs and duration of treatment, also as to whether treatment should be continuous or intermittent, and whether the drugs used should be given simultaneously or in alternating courses. The method of choice for early cases is continuous treatment for at least two years with arsphenamine or neo-arsphenamine, bismuth and mercury, in adequate dosage and in courses of one drug at a time. In gummatous lesions and most others of the tertiary type, potassium iodide is also of value.

Patients with iritis in the secondary period should invariably be treated intensively for two years. The governing consideration in their treatment should be not the healing of the eye lesions but the clearing-up of their general infection.

Patients with interstitial keratitis or tertiary iritis should be treated with some efficient preparation of arsphenamine and with iodides. The arsphenamine treatment should be given in courses of from six to ten injections alternating with courses of bismuth and mercury. Continuous treatment should be carried on for at least a year and intermittent treatment for two years further.

It is established that some cases of optic atrophy remain arrested for a long period after adequate arsphenamine treatment. Most of the cases which respond favorably are due to meningo-vascular syphilis, but some to tabes. The best results have been obtained from intraspinal treatment.

It is probable, also, that in other cases second nerve degeneration has been hastened by treatment. However, if the prognosis without treatment is absolutely bad, it seems advisable to attempt administration of some form of arsphenamine intravenously in all, and intradurally in those showing any abnormality in the cerebro-spinal fluid.

Section of Surgery, May 6, 1927

GASTRIC SECRETION AFTER SUBTOTAL GASTRECTOMY*

EUGENE KLEIN

Hydrochloric acid is one of the important factors in the production of peptic ulcers. The good results after partial gastrectomy have been ascribed to the production of an anacidity. Lewisohn has reported that 77 per cent. of the cases show no free acid after partial gastrectomy. Others have had similar results. The thought naturally occurs that if an anacidity was effected in 77 per cent., it would be of value to ascertain why the remaining 23 per cent. were not rendered anacid. In addition some gastrojejunal ulcers have recently been reported after this operation. It would be interesting to discover if these had occurred among the group in which the acidity had persisted. To study these questions a more careful analysis of the acid conditions was made after every partial gastrectomy. In place of the Ewald test meal which had previously been used, fractional (Rehfuss) test meals were made over a period of three hours.

A consideration of the physiology of the stomach shows that the operation of partial gastrectomy removes only one of the phases of gastric secretion.

The *primary* or psychic phase is due to impulses which reach the stomach over the vagi and are initiated chiefly by the tasting and chewing of food. This response varies in different individuals and also in the same individual at different times. It is directly proportional to the amount of appetite.

The *secondary* phase follows on the contact of the gastric mucosa with certain food and chemical substances, the most important being the products of protein digestion. Since the primary phase which initiates gastric digestion lasts about two hours, sufficient acid and ferment are secreted to digest some of the food present and therefore furnish these protein products.

* From the Surgical Service of Dr. A. A. Berg and from the Laboratory, Mount Sinai Hospital, New York City.

The acid and peptic cells are located in the body and fundus of the stomach. There are none in the antrum. Nevertheless, stimulation of the body and fundus by the presence of protein products *does not cause* gastric secretion. Similar stimulation of the antrum *does*. The site, therefore, for the secondary stimulus is the antrum. This is the part of the stomach removed in partial gastrectomy.

The intestinal phase of gastric secretion starts one to two hours after the entrance of food into the intestine. Its relative importance in man is not yet determined.

In addition to these there is the so-called continuous secretion. It is probable that the gastric glands are always active. But while in the majority of individuals the secretion, except following the above stimuli, is small, in others it may be very large. Though a continued secretion with a high acidity in a stomach that contains no food may be pathological, it is often found in apparently normal individuals. It may be that those with the so-called ulcer diathesis fall within this group, since this condition is very common in duodenal ulcer. The origin of this secretion is unknown. It may be due to an exaggerated vagus tone.

The amount of acid secreted in different people varies, since the stimuli exerted by these different phases are *not* of the same potency for all. Normal individuals thus fall into hypo, iso and hypersecretory groups, the largest being the middle or isosecretory group.

Partial gastrectomy removes the antrum and hence the secondary phase. This is ordinarily the most important. It, therefore, reduces quantitatively the amount of acid secreted. The remainder is neutralized wholly or in part by the food, saliva, bile and pancreatic juice. Whether it will be completely neutralized depends on the potency of the other phases in the particular individual. If, for instance, there is a very high and prolonged continuous secretion due to a markedly exaggerated vagus tone, antrectomy will only reduce the acidity. But where these phases are not overactive, antrectomy will produce a hypo or anacidity.

Table 1 shows the maximum acidity in the Rehfuß test meals immediately after (Recent), and six months after (Old) partial gastrectomy. These are compared to preoperative findings. In the group of duodenal ulcers there is a moderate immediate and

MAXIMUM FREE ACID AFTER PARTIAL GASTRECTOMY IN FRACTIONAL
TEST MEALS

		Anacid	0-20	20-50	50 +	No. of cases
Duodenal	Unoperated		4%	36%	60%	50
	Recent	9%	9%	46%	36%	11
	Old	25%	41%	17%	17%	12
Gastric	Unoperated		28%	60%	12%	25
	Recent	45%	33%	11%	11%	9
	Old	100%				3
Gastrojejunal	Unoperated		11%	67%	22%	9
	Recent	25%	25%	50%		4
	Old	50%		50%		2

RECENT refers to cases examined about three weeks after operation.

OLD refers to cases examined about six months after operation.

UNOPERATED in GASTROJEJUNAL group refers to cases examined before partial gastrectomy.

a marked late reduction. In the gastric ulcers there is a marked diminution in acidity both immediately and six months later. The same is true of the group of gastrojejunal ulcers, although the number of post-operative cases is still small. A high continuous secretion is common in duodenal ulcer. It is rare in gastric ulcer. It may be that this accounts for the higher acidity left in the duodenal group. The cause for the further reduction after six months cannot be given. Possibly this is due to a lowering of the vagus tone.

While partial gastrectomy does not apparently produce an anacidity in as large a percentage of cases as previously believed, it nevertheless accomplishes a far greater reduction than gastroenterostomy. Gastroenterostomy produces no quantitative diminution of acid secretion. It must hope to neutralize all of the acid secreted from all of the phases and it rarely succeeds.

That the amount of acid reduction actually achieved by partial gastrectomy is significant, is shown by the few recurrences reported after the operation. Where gastrojejunal ulcers do follow, it is no doubt due to the fact that a sufficient lowering of acidity was not effected because of the reasons mentioned above.

Whatever acid did remain was sufficient in combination with the other causative factors of ulcer to produce a recurrence.

Section of Neurology and Psychiatry, May 10, 1927

STATIC AND KINETIC INNERVATION

J. FESER

The whole brain mechanism can be divided into a mechanism for the static innervation and one of the kinetic innervation. Static innervation means posture, attitude; kinetic innervation means actual and virtual movements of the body, limbs, eye, tongue, etc.

The apparatus of static innervation is described by Spiegel, *Klinische Wochenschrift*, 1926, page 277, as follows:

First, it consists of the centers in the rhombencephalon, the nucleus Deiters and the cells of the *formatio reticularis*, which are the centers of the decerebrate rigidity. It is worth mentioning that a similar phenomenon in the frog was described before Sherrington by Verworn in his "General Physiology," 1898.

The centers for the prevalence of extensor tonus, the decerebrate rigidity, are balanced by the *nucleus ruber* with the rubro-spinal tract, resulting in an even distribution of tone in the muscle system. The midbrain animal is able not only to stand, but also to move.

A further tonus-regulating influence issues from the cerebellum through the *brachium conjunctivum* to the *nucleus ruber* and through the *corpus restiforme* to the cells of the *formatio reticularis*.

The cerebellum, in its turn, is under a static influence from the brain cortex through the fronto- and temporo-pontine tracts.

Finally, the *nucleus ruber* is under the control of the striatum, which is *via thalamus* influenced by the brain cortex also.

Such is the apparatus of the static innervation as described by Spiegel.

The apparatus of the kinetic innervation, on the other hand, consists of the pyramidal tracts and their centers, the occipital,

parietal and temporal lobes with the exclusion, of course, of the sensory terminals in these regions.

. Its function concerns the movements of the body and limbs, and also, according to the given anatomical delimitation, the intellectual behavior, language spoken and written, imagination, the formation of representations and actions. Thinking, it appears, is a dream of doing something, as H. Jackson aptly said.

The line thus drawn between a static and a kinetic innervation corresponds to a line we are very familiar with in psychology. Here the most fundamental and most general distinction to be made is the distinction of a "What" and a "That." In other words, there is a certain content, a "What," perceived or imagined, and there is our attitude towards it; a "That" by which we characterize the content, as agreeable or disagreeable, as well-known or hardly noticed, as familiar or strange, as willed or desired, etc. Attitude, the "That," is a function of the static apparatus; content, the "What," is a function of the kinetic, the intellectual apparatus.

Thus it is possible to reduce the psychological data to terms of behavior, to posture and movement, and to get rid of such obscure words as mind and consciousness.

The mental diseases can be classified on the basis of this distinction. Kleist, in a paper, "*Die gegenwärtigen Strömungen in der Psychiatrie*," has made a similar attempt when he divided psychiatric diseases into those predominantly of the brain-stem and those of the brain cortex.

Hypnotism and suggestion are put on a physiological basis; they are revealed as conditions where the individual does not or cannot adapt his attitude to his impressions. His attitude is bound, as his muscles are bound. This seems the simple truth from the standpoint of motility.

Finally, neurasthenic and hysterical reactions present themselves obviously as diseases of the brain-stem and of perhaps the basal ganglia; they are postural, attitudinal disorders.

Thus it appears that the facts of psychology and psychopathology, or better, of normal and abnormal behavior, receive a new light from the distinction of static and kinetic innervation.

They are put on an intelligible, neurological basis, from which further investigation concerning their pathological nature can start.

Freud, in one of his latest papers, "Die Laienpsychoanalyse," says: "For the psychoanalyst the neuroses are an annoyance and embarrassment (ein Aergeris und eine Verlegenheit)."

This applies truly to any attempt to attack these conditions on purely psychological grounds.

A more favorable attack can be made when neuroses and psychoses are understood from the standpoint of motility, consisting of its two factors, posture and movement, static and kinetic innervation in their mutual interrelation.

Section of Otology, May 13, 1927

MASTOIDITIS IN INFANTS

ARTHUR M. ALDEN, St. Louis, Mo.

Prior to about two years ago a surgical mastoiditis in an infant was rarely diagnosed except upon the basis of external signs; redness, swelling or subperiosteal abscess. Largely as the result of work done in the St. Louis Children's Hospital and followed up and corroborated elsewhere, we now know that an infant may have a very severe type of mastoid infection capable of producing profound constitutional symptoms and even death without any of the conventional signs of mastoiditis being present.

Routine autopsies on infants who had died as a result of what has hitherto been called cholera infantum, marasmus, or intestinal decomposition have uniformly failed to show causal pathology in the gastro-intestinal tract, but almost without exception pronounced infections of the mastoid antra and middle ear were demonstrated.

Mastoiditis in adults has been classified from a pathological standpoint into two types, coalescent and hemorrhagic. In the former, the local spread of the infection is by direct continuity and the symptoms are, for the most part, the results of pressure.

In the latter, the dissemination of the infective agent takes place by way of the local blood or lymph channels and the symptoms are the result of massive and profound toxic absorption. Each of these types of mastoiditis in the adult has its analogue in the infant. The first type includes the hitherto-accepted classic form of mastoiditis with its local swelling, redness and subperiosteal abscess. The diagnosis in this type of the disease presents no difficulty and is often made by the parent. In the other type of the infection, which in the infant we have called the non-coalescent type of mastoiditis, external signs are as a rule absent and the predominating symptoms are fever, diarrhea and vomiting, which are the result of septic absorption from the infected ears. The diagnosis as to the true cause of this gastro-intestinal syndrome is often missed because the ears of these cases are not carefully examined. The otologic signs in this latter type are change in color and luster of the ear drum to a dirty gray or yellowish appearance. Redness and bulging may or may not be present. A sag in the superior wall of the canal external to the drum is pathognomonic of this condition. Such drums should always be incised, and incision is usually followed by a prompt remission of the intestinal symptoms.

The pediatric treatment of this type of case is very important and consists of supportive therapy in the nature of fluids, Ringier's solution and transfusions, usually administered directly into the superior longitudinal sinus. Only, when in spite of adequate drainage through the ear drums and all supportive measures; the condition of the child as shown by the weight and fever curve becomes progressively worse, do we feel that external drainage of the mastoid antrum must be done. Earlier in our work we were reluctant to operate upon these babies until they were almost moribund, and many of our early fatalities could, I am sure, have been prevented had they been operated earlier in the course of the disease. When it is determined that mastoid antrotomy is indicated, the sooner that it is done the better will be the prognosis for the little patient, because these babies often pass from a very fair to an almost dying condition in a few hours.

In our hands all the operations have been carried out under local anesthesia. For this purpose, one-half per cent. novocaine with ten drops of one to one thousand adrenalin to the ounce has

been used with very satisfactory results. The skin over the mastoid and the periosteum covering the mastoid antrum are thoroughly infiltrated. The incision required is usually one and one-half to two cm. in length. The only landmark which it is necessary to see is the posterior-superior margin of the external auditory canal or the posterior-superior margin of the annulus. The infantile mastoid antrum lies just behind and above this point. After the periosteum is elevated, the cortex is removed by a rotary motion of an eight mm. Alexander gouge. This usually completely unroofs the tiny mastoid antrum. All overhanging edges are removed with forceps and the granulations gently wiped or curetted from the mastoid cell. The curette should never be passed forward into the aditus or attic on account of the danger of tearing or displacing the ossicular attachments. When the operation is finished the antrum is lightly packed with a gauze drain and no attempt at surgical closure of the edges of the incision made.

The first dressing is usually changed on the second day after operation, and from that time until the wounds are healed daily dressings should be the rule. Sterile dressing technique is very important, because in those cases which become secondarily infected the convalescence is, as a rule, prolonged and stormy. The gauze drain should be kept in place until inspection of the ear shows the tympanic membrane to be closed or the perforation, if patent, dry. In those cases which show an obstructive mass of adenoids or a nasopharyngitis which does not yield readily to treatment, an adenoidectomy performed before the child leaves the hospital will probably help to prevent recurrence.

In two and one-half years' experience with these cases we have learned many things. At first, cases were operated upon only when disaster threatened. Of the first seventeen cases which came to operation, we were able to save nine. Realizing that some of the cases which died could probably have been saved had they been operated earlier, we became somewhat bolder, and of the next nine cases only three died. In the next series of forty cases we saved all but five, two dying of pneumonia, one of meningitis, one of athrepsia and one of septicemia.

Lantern slide demonstration of cases, temperature and weight charts and technique of the operative procedure.

Section of Obstetrics and Gynecology, May 31, 1927

THE NASAL APPLICATION OF PITUITARY EXTRACT FOR OBSTETRICAL PURPOSES

J. HOFBAUER, Baltimore

The recent clinical study of Scott on the present state of induction of labor revealed the fact that, up to this time, there is no method of serving this purpose that is absolutely free from danger to either mother or child, and more particularly Watson's technique has some dangers to the infant, due, for the most part, to the occasional tetanic contractions which sometimes follow the use of the drug. Watson's method is based on the administration of castor oil and quinine with the object of sensitizing the uterine muscle, followed by the repeated subcutaneous injection of 0.5 cc. doses of pituitary extract at half-hour intervals until labor sets in or until six doses have been given. Those who have had experience with this method agree that too strong an action of pituitrin may produce disastrous effects on the child; furthermore, since the presence of toxemia or cardiac complication is generally considered a distinct contra-indication, the method should be employed only in selected cases.

The general recognition of these shortcomings of Watson's method supplied the impetus for us to seek some method of improving it. Two main considerations influenced our search for new channels through which pituitary extract may be absorbed in a more effective and at the same time in a less dangerous way. The desideration being to discover, if possible, whether the local application of pituitary extract to some mucous membrane would permit its *slow* and *steady* absorption. The possibility of withdrawing the drug from the mucous membrane as soon as the tendency of the uterus to pass into tetanic contraction became noticeable, was considered an essential feature of any attempt to replace the hypodermic route.

The oral administration of pituitary extract, both for the purpose of inducing labor and of stimulating pains in cases of *inertia uteri*, was first considered, since under experimental conditions a marked effect upon the uterus, increasing both its tone and auto-

matie contractions after administration of this drug to the sublingual region, was clearly evidenced by the recent work of Knaus. We employed this technique for the induction of labor in twenty patients. Labor was successfully induced in nine out of these twenty patients—an efficacy of 45 per cent. results. In eleven additional instances the same technique was employed to stimulate pains in patients who were already in labor but in whom the pains had stopped for a number of hours—irrespective of the degree of cervical dilatation and regardless of whether the membranes were ruptured or not. In ten of these cases a satisfactory result was obtained without ill-effect to either mother or child.

In the search for another portal of entry from which the pituitary extract could be absorbed more satisfactorily, our attention was directed especially to the nasal route, taking particularly into account the consideration that the mucous membranes covering the inferior turbinate constitute a highly vascular tissue whose vascularity and tendency to engorgement, as well as the width of its lymphatic beds, are markedly increased during pregnancy. Since, in the present paper, we propose to deal chiefly with the therapeutic utilization of the nasal mucosa for the absorption of pituitary extract, both by blood stream and by lymphatics, an accompanying semi-diagrammatic representation of the lateral nasal wall may be of service for a ready understanding of the topography. Under direct vision, with the aid of a nasal speculum and reflected light, a small pledge of cotton of such size as to fit easily but snugly between the septum and the inferior turbinate, and moistened with 10–20 minims of pituitary extract, is inserted under the anterior end of the inferior turbinate. If the pledget is inserted gently the patient does not experience any appreciable discomfort, and in none of our cases was it necessary to resort to any kind of local anesthetic. In every instance prior to the nasal application of pituitary extract the patient was prepared in the routine manner of giving a hot drink and castor oil and quinine by mouth, followed by a high enema. A period of two to three hours was allowed to elapse between the preliminary preparation and the administration of the first dose of pituitrin in order to make sure that the former had not been sufficient to induce pains. Uterine contractions invariably follow the nasal application of pituitary extract

within one to five minutes. In the event that the first contraction lasted longer than four minutes, the pledget was withdrawn and the uterus relaxed within the next 60-70 seconds. If no tetanic contraction occurred during the first fifteen minutes, we considered that the danger from such an accident had passed.

Unless the first application has resulted in setting up satisfactory contractions at the end of two hours, the pledget is withdrawn and a fresh one applied to the opposite nostril for a similar period of time. In the majority of our cases one to three applications were required for a successful induction of labor. In only a few cases five doses were given. It is important to bear in mind that our experience shows that in pre-eclamptic cases labor can be induced with the greatest ease, one application of pituitrin usually being sufficient; whereas, greater difficulty was encountered in the nephritic cases in which the response was definitely less pronounced. It is interesting to note that in none of the toxemic cases did the blood pressure rise materially over the initial level during the course of induction. Furthermore, we came to realize that while the method under consideration is rarely effective in normal pregnancy much before term, it gives satisfactory results in toxic patients a month or six weeks before term.

Up to the present time we have employed the nasal method of inducing labor in seventy patients. The indications for the induction of labor are given in the accompanying table:

Toxemia	28 cases
Postmaturity	12 "
Severe pyelitis	5 "
Hydramnios	2 "
Dead foetus	2 "
To test the method in normal cases at term and in the last month of pregnancy	21 "

In group 1-5 (forty-nine cases), labor was induced successfully in all cases recorded. In the last group nine failures occurred. We found here that patients in whom the cervix still presented a length of 2 cm., with the external os tightly closed, offered the least chance of a good result, while those showing obliteration of the cervical canal offered much better prospects. This observation is quite in harmony with the results of recent experiments

of Knaus, which indicate that considerable changes occur in the relationship between the hypophysis and the uterine muscle during pregnancy, and that, due to an increase of the contractability and the tone of the uterine muscle toward the end of pregnancy, labor can be induced by comparatively small doses of pituitrin at term but not before term.

The fact that in our series all of the babies have been born alive testifies to the control we possess over the action of the drug. Furthermore, it may be mentioned that we have also found the nasal method a safe and efficient procedure in accelerating labor when already in progress. In conclusion, our investigations also show that the administration of repeated small doses of pituitary extract renders a valuable service in cases of pyelitis in pregnancy.

PRELIMINARY ANNOUNCEMENT OF STATED MEET- INGS OF THE ACADEMY 1927-1928

October 6.—*The economic cost of disease.* Edgar Sydenstricker, Statistician, U. S. Public Health Service, Washington; Louis I. Dublin, Statistician, Metropolitan Life Insurance Company of New York; Leland E. Cofer, Director, Bureau of Industrial Hygiene, State of New York.

October 20.—*Carpenter Lecture:* The present and future food supply of the United States. Alonzo E. Taylor, Director of Food Research, Stanford University, California.

November 3.—*Recent knowledge of epidemic diseases.* Leslie T. Webster, Rockefeller Institute for Medical Research, New York.

November 17.—*Anniversary Discourse.* John Dewey, Professor of Philosophy, Columbia University, New York.

December 1.—*Malaria in syphilis.* George H. Kirby, Director Psychiatric Institute of the New York State Hospitals, and Henry A. Bunker, Assistant Director; Charles W. Stone, Associate Professor of Nervous Diseases, Western Reserve University, Cleveland.

December 15.—*Experimental work on the tumor question.* James B. Murphy, Rockefeller Institute for Medical Research, New York.

January 5.—*Annual Meeting*. On the significance of bacterial allergy in infecticous diseases. Hans Zinsser, Professor of Bacteriology and Immunology, Harvard University.

January 19.—*Graduate medical education*. Louis B. Wilson, Director Mayo Foundation, Rochester, Minnesota.

February 2.—*Alcoholism*. Matthias Nicoll, Jr., Commissioner of Health, State of New York; Charles Norris, Chief Medical Examiner, City of New York; Alexander O. Gettler, Assistant Medical Examiner, City of New York.

February 16.—*Animal diseases in man*. Theobald Smith, Director Department of Animal Pathology, Rockefeller Institute, Princeton.

March 1.—*The eye in relation to disease*. G. E. deSchweinitz, Philadelphia.

March 19.—*Physical therapy*. Frank B. Granger, Boston.

April 5.—*Management of the psychoneuroses*. Austin F. Riggs, Stockbridge, Mass.

April 19.—*The future of surgery*. Walton Martin, New York.

May 5.—*Behaviorism and delinquency*. William Healy, Director Judge Baker Foundation, Boston; John B. Watson, New York.

May 17.—*Recent biological studies and their significance*. Edmund V. Cowdry, Rockefeller Institute for Medical Research, New York.

RESOLUTION REGARDING THE VOLSTEAD ACT

Passed at the Stated Meeting of the Academy, May 5, 1925

Whereas, the Federal Law, known as the Volstead Act, in the provisions of Section 7, the constitutionality of which has been upheld in a recent decision of the Supreme Court of the United States, limits the freedom of the physician in prescribing for his patients; and,

Whereas, this Congressional assumption of power belonging to the States takes away from the States their right to regulate the practice of medicine within their own borders; and,

Whereas, this power may be extended so as to limit the use of other drugs for the satisfactory and scientific practice of medicine and to the discomfiture of the States; be it

Resolved, that The New York Academy of Medicine hereby records its opinion that Section 7 of the Volstead Act is a serious infringement upon the legitimate practice of medicine, and that the Council of the Academy is hereby authorized to take such steps as it may deem necessary to secure a modification of this Section so that there will be no limitation in the time during which one pint of spirituous liquor may be administered under due regulations to prevent the illegal use of spirituous liquor for beverage purposes.

COMMITTEE ON MEDICAL EDUCATION

Opportunities for Graduate Medical Study in Hospitals of New York City

The Committee has just published a revision of the booklet entitled, "Opportunities for Graduate Medical Study in Hospitals of New York City," the first edition of which appeared about a year ago. Besides a re-arrangement of its contents, considerable new matter has been added, so that the booklet now presents in concise form a fairly accurate description of the many and varied opportunities which are offered for clinical study in the hospitals of greater New York.

The main portion of the booklet is devoted to details describing the special opportunities which are offered in each of the ninety teaching hospitals, with the names of the clinicians and the hours when the clinics, conferences, grand rounds, etc., are held.

A list of more than 230 special internships or residencies in the clinical specialties offered in the hospitals of the city is presented for the first time. There are also lists of undergraduate and postgraduate medical schools and of the graduate medical courses offered in hospitals of the city.

The booklet has been prepared particularly for the use of medical visitors whose stay in the city is limited. Copies may be obtained on application to the Bureau of Clinical Information.

INDUSTRIAL HYGIENE EXHIBIT AT THE ACADEMY

Beginning on Thursday, October 6th, and lasting for about ten days, there will be at The New York Academy of Medicine the Industrial Hygiene Exhibit of the New York State Department of Labor, comprising wax models illustrating some of the most important industrial diseases; a collection of dusts which are the natural by-products of many of the industries; glass transparencies showing the effects of injurious dusts upon the body; various devices used in the study of the causation of industrial diseases; working models showing mechanical devices for removing dusts from work rooms, and moving pictures showing various conditions in industry and the application of Industrial Hygiene to the general betterment of these conditions.

CANDIDATES RECOMMENDED FOR ELECTION TO FELLOWSHIP OCTOBER 6, 1927:

Irving Balensweig, M.D., 34 West 91st Street.
 Milton Arlanden Bridges, M.D., 148 West 74th Street.
 Lyman Weeks Crossman, M.D., 13 East 11th Street.
 George William Cumbler, M.D., 65 East 55th Street.
 Arthur Christian DeGraff, M.D., 142 East 33rd Street.
 Connie Myers Guion, M.D., 147 East 50th Street.
 Abraham Kardiner, M.D., 1150 Fifth Avenue.
 Harry Clifton Luke, M.D., 121 East 60th Street.
 Frank Joseph McGowan, Jr., M.D., 100 East 66th Street.
 John James McGowan, M.D., 472 West 143rd Street.
 Frederick Westcott Solley, M.D., 114 East 60th Street.
 Samuel Stern, M.D., 40 East 51st Street.
 Arthur Hutchinson Terry, Jr., M.D., 137 East 66th Street.
 Grant Thorburn, M.D., 379 Park Avenue.
 Seymour Frederick Wilhelm, M.D., 4 East 95th Street.

RECENT ACCESSIONS TO THE LIBRARY

- de Abreu, M. Essai sur une nouvelle radiologie vasculaire.
Paris, Masson, 1926, 215 p.
- Argelander, A. Das Farbenhören.
Jena, Fischer, 1927, 172 p.
- Armstrong, H. E. Essays on the art and principles of chemistry.
New York, Macmillan, 1927, 276 p.
- Ashhurst, A. P. C. Surgery. 3. ed.
Philadelphia, Lea, 1927, 1179 p.
- Berg, L. S. Nomogenesis, or evolution determined by law.
London, Constable, 1926, 477 p.
- Bodin, J. Contre Freud. Critique de toute psychologie de l'inconscient.
Paris, Masson, 1926, 99 p.
- Bondi, S. Herz hinterwand und oesophageale Auskultation.
Wien, Springer, 1927, 114 p.
- Bretonneau, P. Die Diphtherie.
Berlin, Springer, 1927, 173 p.
- Burnet, J. Diseases of the newborn.
London, Oxford Pr., 1927, 275 p.
- Cemach, A. L. Das Problem der Mittelohrtuberkulose.
Berlin, Urban, 1926, 224 p.
- Chiray, M. & Lebon, J. Les insuffisances pancréatiques.
Paris, Masson, 1926, 210 p.
- Clark, A. J. Comparative physiology of the heart.
Cambridge, Univ. Pr., 1927, 157 p.
- Coffey, W. B., Brown, P. K. & Humber, J. D. Angina pectoris.
New Orleans, Dickerson, 1927, 393 p.
- Conduct (The) of medical practice. By the editor of "The Lancet" and expert collaborators.
London, "The Lancet," 1927, 332 p.
- Cooley, E. J. Probation and delinquency.
New York, Nelson, 1927, 544 p.
- Dubreuil-Chambardel, L. Variations des artères du membre supérieur . . .
Paris, Masson, 1926, 256 p.
- Duchange, R. L'anesthésie tronculaire des mâchoires par voie buccale.
Paris, Masson, 1926, 112 p.

- Ellis, H. The task of social hygiene. 2. ed.
London, Constable, 1927, 414 p.
- Enzyklopädie der mikroskopischen Technik. 3. Aufl. Hrsg. von
R. Krause.
Berlin, Urban, 1926-27, 3 vols.
- Frieboes, W. Atlas der Haut- und Geschlechtskrankheiten,
Lfg. 1.
Leipzig, Vogel, 1927.
- Girel, C. La roentgenthérapie des épithéliomas cutanés . . .
Paris, Masson, 1926, 300 p.
- Goldschmidt, R. Physiologische Theorie der Vererbung.
Berlin, Springer, 1927, 247 p.
- Great Britain. Air ministry. Manual for medical officers of
the Royal air force.
London, H. M. S. off., 1927, 241 p.
- Greene, J. S. & Wells, E. J. The cause and cure of speech dis-
orders.
New York, Macmillan, 1927, 458 p.
- Grenet, H., Levant, R. & Pellissier, L. Les syphilis viscérales
tardives.
Paris, Masson, 1927, 378 p.
- Guillain, G., Larcohe, G. & Lechelle, P. Technique de la réaction
du benjoin colloïdal.
Paris, Masson, 1926, 36 p.
- Handbueh der praktischen Therapie. Hrsg. von R. von der
Velden und P. Wolff.
Leipzig, Barth, 1927, 2v.
- Harrower, H. R. The hepatic principle anabolin, detoxication
by the liver and the control of functional hypertension.
London, Baillière, 1927, 147 p.
- Hebert, G. T. Pulmonary tuberculosis.
London, Arnold, 1927, 212 p.
- Henderson, D. K. & Gillespie, R. D. A textbook of psychiatry.
London, Oxford Pr., 1927, 520 p.
- Hérail, J. Traité de maitière médicale pharmaeographie. 3. éd.
Paris, Baillière, 1927, 819 p.
- Hering, H. E. Die Karotissinusreflexe auf Herz und Gefässe.
Dresden, Steinkopff, 1927, 150 p.

- Jones, P. C. V. The significance of temperature variations in tuberculous disease.
Cambridge, Papworth [1926], 174 p.
- Ker's manual of fevers. Revised by C. Rundle. 3. ed.
London, Oxford Pr., 1927, 346 p.
- Kleinschmidt, H. Tuberkulose der Kinder. 2. Aufl.
Leipzig, Barth, 1927, 221 p.
- Knowles, R. & Senior-White, R. Malaria.
Calcutta, Thacker, 1927, 220 p.
- Lehrbuch der speziellen Chirurgie. Hrsg. von J. Hochenegg und E. Payr. 2. Aufl. vol. 1.
Berlin, Urban, 1927.
- Léri, A. Études sur les affections des os et des articulations.
Paris, Masson, 1926, 460 p.
- McFall, R. J. The world's meat.
New York, Appleton, 1927, 624 p.
- McNalty, A. S. Epidemic diseases of the central nervous system.
London, Faber, 1927, 194 p.
- Monchamps, E. & Moritz, E. Les étapes mentales de l'observation des images.
Bruxelles, Oeuvre nat. de l'enfance, 1927, 172 p.
- Müller, M. Johannes Müller.
Leipzig, Barth, 1927, 101 p.
- Myers, J. A. The normal chest of the adult and the child.
Baltimore, Williams, 1927, 419 p.
- Nové-Josserand, G. & Tavernier, L. Tumeurs malignes des os.
Paris, G. Doin, 1927, 424 p.
- Parry, L. A. Some famous medical trials.
London, Churchill, 1927, 326 p.
- Pearce, E. C. A textbook of orthopaedic nursing.
London, Sci. Pr., 1927, 155 p.
- Pinch, A. E. H. Superficial radium therapy.
London, Radium Inst., 1927, 64 p.
- Piney, A. Recent advances in haematology.
Philadelphia, Blakiston, 1927, 276 p.
- Portmann, G. & Retrouvey, H. Le cancer du nez . . .
Paris, G. Doin, 1927, 973 p.
- Renaud, M. Les cancers et leurs complications.
Paris, Masson, 1927, 322 p.

- Ritchie, M. B. H. *Aesculapius armaque*.
London, Bale, 1927, 112 p.
- Roche, A. E. *Pyelography*.
London, Lewis, 1927, 118 p.
- Rose, M. S. *The foundations of nutrition*.
New York, Macmillan, 1927, 501 p.
- Rudolf, G. de M. *Therapeutic malaria*.
London, Oxford Pr., 1927, 223 p.
- Sargent, D. A. *An autobiography*.
Philadelphia, Lea, 1927, 221 p.
- Sarton, G. *Introduction to the history of science*. v. 1.
Baltimore, Williams, 1927.
- Sinclair, M. *The Thomas splint*.
London, Oxford Pr., 1927, 168 p.
- Stengel, A. & Fox, H. *A textbook of pathology*. 8. ed.
Philadelphia, Saunders, 1927, 1138 p.
- Stewart, F. H. *Segregation and autogamy in bacteria*.
London, Adlard, 1927, 104 p.
- Strickler, A. *The skin: its care and treatment*.
New York, Appleton, 1927, 194 p.
- Theobald, G. W. *Normal midwifery*.
London, Oxford Pr., 1927, 258 p.
- Thomson, J. A. *Towards health*.
London, Methuen, 1927, 242 p.
- Tipper, E. H. *The cradle of the world and cancer: a disease of civilization*.
London, Murray, 1927, 142 p.
- Tracy, E. A. *The white spots of epilepsy*.
Boston, Howard, [1926], 129 p.
- Transactions of the American laryngological association*, 1926.
- Truc, H. *Hygiène oculaire et inspection du travail*.
Paris, Masson, 1926, 183 p.
- Williams, J. F. *The principles of physical education*.
Philadelphia, Saunders, 1927, 481 p.
- Woodbury, R. M. *Workers' health and safety*.
New York, Macmillan, 1927, 207 p.
- Worcester, A. *Nurses and nursing*.
Cambridge, Harvard Univ. Pr., 1927, 173 p.

NOTE

At the time of the opening of the new building last November an exhibition of "Early and Later Medical Americana" was arranged by the Exhibits Committee. A catalogue of this, containing twenty illustrative plates and many biographical and bibliographical notes, has now been printed. Those who are interested may obtain a copy in the Library.

CORRECTION

In the note in the Richard Bright Exhibit which appeared in the August number of the BULLETIN a mistake was made in a date, which should be 1814 instead of 1914, next to the last line, page 545.

DEATHS OF FELLOWS OF THE ACADEMY

JOHN COVERT BOYD, M.D., U. S. Navy; graduated in medicine from the Medical Department, New York University in 1872; elected a Fellow of the Academy, April 2, 1896; died, July 7, 1927.

THEODORE BAME BARRINGER, JR., B.S. (1894), M.D., 112 East 76th Street, New York City; graduated in medicine from the Medical Department, New York University in 1897; elected a Fellow of the Academy, January 4, 1906; died, July 15, 1927. Dr. Barringer was a Fellow of the American Medical Association, a member of the Alumni Association of New York Hospital and associate attending physician to the New York Hospital.

ELWIN WALLACE HANNOCK, M.D., 363 State Street, Albany, N. Y.; graduated in medicine from the Albany Medical College in 1910; elected a Fellow of the Academy, January 15, 1914; died, August 5, 1927, at Lake Springs, N. J. Dr. Hannock was attending orthopedic surgeon to the Memorial Hospital, Albany.

THOMAS WILLIAM SALMON, M.D., 123 East 53rd Street, New York City; graduated in medicine from the Albany Medical College in 1899; elected a Fellow of the Academy, April 6, 1916; died, August 13, 1927. Dr. Salmon was a Fellow of the American Medical Association, a member of the American Neurological Association, president of the New York Psychiatric Society and the American Psychiatric Association, a member of the American Psychopathic Society, and a member of the American Society for the Advancement of Science. He was, since 1921, professor of psychiatry at Columbia University, College of Physicians and Surgeons; senior consultant in neuropsychiatry in the American Expeditionary Forces during the World War; was awarded the Distinguished Service Medal; Brigadier General, Medical Officers' Reserve Corps; member of the medical council of the U. S. Veterans' Bureau and of the Permanent Interallied Committee on the After-Care of Disabled Soldiers; one of the editors of the Medical History of the World War; author of chapters on nervous and mental diseases in several textbooks, and a frequent contributor to medical journals.

CHARLES CARTLIDGE GODFREY, M.D., 340 State Street, Bridgeport, Conn.; graduated in medicine from the Dartmouth Medical College in 1883; elected a Fellow of the Academy, April 2, 1896; died, August 31, 1927.

THE NEW YORK ACADEMY OF MEDICINE

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NOVEMBER, 1927

No. 11

EARLY MEDIAEVAL ANATOMY¹

The object of Corner's book is to trace the accessible threads of continuity in the development of didactic anatomy at the School of Salerno and elsewhere during the 11th-13th centuries. It was prepared by Professor Corner (University of Rochester) during a sabbatical period abroad and largely reflects the views of Singer. The main story is simple. During the long, sterile period following the Dark Ages, there was no anatomy to speak of until the advent of Constantine of Africa, who, about 1080, translated the *Almaleki* or Royal Book (*Pantegni*) of Haly Abbas. Two books on anatomy (II, 2, 3) in this encyclopædia constituted almost the sole source of knowledge at Salerno for a century (1080-1180). Early in the 12th century there appeared three tracts on the dissection of the pig, viz., a "first Salernitan demonstration," variously attributed to Copho (*anatomia Cophonis*) and to Galen (*anatomia parva*); an anonymous "second demonstration," discovered by Henschel in the Breslan Codex (1846) and re-edited by Benedict (1920); and a third dissection of porcine anatomy, known as the *anatomia Mauri*, discovered by Sudhoff in a Vatican MS. and edited by Ploss (1921). These slight performances are apparently the only existing remains of the period 1100-1150. There followed three tracts on human anatomy, known as the *anatomia Ricardi*, the *anatomia Nicolai* and the *anatomia vivorum*, which were not Salernitan but of English and French provenance. Following a clear and informing historical exposition, Corner prints a carefully-collated Latin text of the tract attributed to Copho, with translation, also

¹ Anatomical Tests of the Earlier Middle Ages. A Study in the Transmission of Culture. By George W. Corner. 112 pp. 8°. Washington, Carnegie Inst., 1927.

THE WESLEY M. CARPENTER LECTURE

THE FUTURE FOOD SUPPLY OF THE UNITED STATES

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(Delivered before The New York Academy of Medicine, October 20, 1927)

Introduction

In matters of science, as in heresy, one may as well be hung for a sheep as for a lamb. In what follows the writer does not undertake to instruct; nor are his utterances to be taken as a record of research. What follows is interpretation of the *status quo* applied to prophecy. The modest undertaking is to forecast the food supply of the United States a half century hence. Placed on record in the conspicuous publication of The New York Academy of Medicine, the forecast will remain available for scientific reappraisal.

A prophecy is essentially the projection of existing knowledge into the future. Let us make no assumption of new discoveries, confining ourselves objectively to an appraisal of the developments probable under existing knowledge and demonstrated practice during the next two generations. In particular, all suggestions of factory synthesis of foodstuffs shall be avoided. The interpretations may fall into error and the forecast be thereby vitiated. Unforeseen developments may eventuate. But in any event, the prediction will not be encumbered with hypotheses.

The food requirements, in terms of heat units per statistical adult man, depend on the climate of the region and the nature of the occupations. Food requirements are further influenced by housing and raiment. The diet of a people in any period is the product of numerous factors—climatic, geographic, economic, physiologic, psychologic and sociologic. In the most enlightened community, the influences of religion and custom persist. Geography, climate, composition of soil, and rainfall determine agricultural production in kind and in quantity. With perfection of communications and transportation, regional restrictions upon consumers are reduced or abolished, being in fact replaced by economic limitations. The diet of a people is

conditioned on purchasing power, and it thus becomes one expression of the state of material civilization. Finally, the diet of a people is influenced by the state of medicine of the period, as expressed in precept and in educational movements.

In any prediction of the future food supply of a people, one must take adequate account of the natural resources of the region involved. In judging resources, one must not rigidly separate food supplies from industrial materials, since these overlap both agriculturally and technologically. Broadly considered, the United States are a nearly self-sufficient unit for the prospective population. We are richly endowed with natural resources. We lack certain essential materials, such as tin, nickel and platinum; we are dependent for rubber on regions outside of the continental United States and entertain no prospect of synthesis to replace tropical rubber. Shortage of forest products seems certain to develop. On the other hand, many goods now imported are replaceable. Tropical oil seeds are readily replaceable with domestic oil seeds. We import coarse wool because our agriculture is too highly civilized to warrant its production; we import fine wool for economic rather than for agricultural reasons. We import hides because we do not need as much meat as would be furnished by the animals whose hides we need. Our huge imports of sugar are not the consequence of inherent agricultural limitation. Naturally we are dependent on imports for coffee, tea, chocolate and spices and for tropical luxuries.

In undertaking the forecast of a future food supply, it would avail us little to consider it on the strict basis of geographical self-sufficiency. Making no predictions as to the future political status of the West Indies, Mexico, Central America, the Philippines and Canada, it is to be assumed that we shall always be able to exchange our products for desirable materials that we can not produce at all, or only at high price. Border trade will always persist. The proximity of Canada and the long extent of the boundary are facts of great importance to our future food supply. It would be to no purpose to discuss for the United States the concept of a self-sufficient agrarian and industrial state. To the writer, the need to develop self-sufficiency of the United States in defense against other white nations is unthinkable. The need for self-sufficiency in defense against colored

racess is equally unthiinkable, for the period of time contemplated in this forecast. In the humble opinion of the writer, the problem of the next half century, based on the experiences of the past century, will not be the defense of the white race from colored races, but the protection of colored races from exploitation by the white race.

The following forecast is based upon a series of assumptions and predications, all of which are grounded on sound science and confirmed experience. Let us develop these in their order, following which the several elements in the forecast will be presented in summarized form.

Growth of Population

Let us begin with a predication of population. Accepting the mathematical treatment of growth of population lately developed by Pearl and Reed, Knibbs, Hotelling and others, we assume that the population of the continental United States fifty years from now will be something like 180 million, and that the maximum population of this area will be something like 200 million. This is to be regarded as our optimum population, the point of most favorable ratio between population and resources. For our present purpose it is immaterial whether the formula of Pearl is logistic or merely empirical. The population thus predicted is of course widely at variance with primitive Malthusian notions. Curiously enough, suggestions of limit of population are decried alike by Malthusians who fear large population and by jingoes who desire it. Such a projected rate of growth of population (with which our increase of population to date is consistent) lies inherent in the high standard of living implied in an efficient material civilization. No country suffering from high birth-rate and low standard of living can solve the problem of congestion of population by emigration. Countries with high standards of living and low birth-rates have neither ethical nor economic justification for unrestricted immigration. Therefore, restriction of immigration is to be accepted as a permanent policy. With the low birth-rate and a death-rate declining through perfection of public hygiene and advancement in medical science, the average expectation of life will be substantially prolonged. In consequence, the age distribution of the population fifty years

from now will be somewhat different from that of to-day. In our forecast, therefore, we envisage the feeding of 180 million Americans fifty years from now, on a diet adapted to the then population, under the circumstances of material civilization reasonably to be anticipated in the arts and sciences.

Mechanization

We predicate the continued mechanization of the material operations of civilization. Machines will continue to replace work animals; this will result in a declining per capita ratio of work animals, with corresponding saving of feeding stuffs. Machines will continue to replace manual labor in fields¹ and forests, in constructions, in factories and in the channels of transportation and distribution. Occupations will become progressively more sedentary, with corresponding reduction in food requirements. Hours of labor will be reduced. This has already progressed during the past fifty years, to the extent of saving several hundred calories in the daily per capita food requirement; we take it this will continue during the next two generations, with corresponding further saving. As a small offset to this, we allow for some increase in food requirements due to the expansion of sports and outdoor recreations to replace manual work as exercise.

Reduction of Waste

Extensive waste exists to-day in the distribution and utilization of foodstuffs. There is waste on the farm, in transportation, in terminals, in manufacturing processes, in wholesale and retail distribution, in the kitchen and on the table. Waste involves both edible and inedible materials, and some waste consists in permitting edible materials to become inedible. We cannot agree that waste is the concomitant of prosperity, that high national income makes national waste negligible. To some extent waste is the expression of extravagance and misdirected social refinement. But, for the most part, waste is the result of faulty technique in production, transportation and distribution and of inefficient practices in manufacturing. It is safe to pre-

¹ Mechanical power is now believed to equal manual labor in American agriculture.

diet a high degree of ultimate success in the elimination of waste, with a corresponding narrowing of the margin between producer and consumer, to the economic gain of both.

Per Capita Food Requirement

Accepting the compilation of Pearl as the basis of computation for the United States, the current consumption per adult man (ingestion plus edible waste) is apparently somewhere around 4,300 calories per day. Pearl's figure for calories ingested was 3,424 per adult man per day. It is difficult to believe that on the average actual ingestion now corresponds to over 3,200 to 3,300 calories per day per adult man. A generous ingestion for a population of the sedentary characteristics that we predicate for the country two generations hence would be not over 2,800 calories per adult man per day.

These figures illustrate the diminution to be attained through control of waste and reduction of manual labor. Let us make the reasonable assumption that fifty years from now it will be necessary to provide no more than 3,300-3,400 calories per adult man per day, to cover ingestion plus waste, corresponding to 2,800-2,900 calories for actual ingestion. This would correspond to a saving of waste of some 500 calories per adult man per day and a saving in ingestion of some 400 calories per day. Despite the outstanding development of efficiency represented in these savings, they are internally and technically to be termed reasonable. We shall need to raise somewhat more food, but lowered waste and ingestion will represent substantial gains.

Distribution of Calories Among the Components of the Diet

According to Pearl, the average diet of a few years ago, as ingested, contained 114 grams of protein, 127 grams of fat, and 433 grams of carbohydrate, corresponding together to about 3,424 calories, per adult man per day. Pearl regarded the figure for fat as somewhat too high, which would bring the total figure for calories down under 3,400, but still above 3,300.

Diversification of the Diet. A pronounced diversification of the diet, in the direction of increased use of fruits and vegetables, is characteristic of the present. This is to be expected to con-

tinue. There are many obvious reasons for the increasing use of fruits and vegetables—improvement in quality, prolongation of seasons, perfection of processes of packing, and healthfulness. One effectual motive lies in the necessity of increasing the bulk of the diet in relation to declining caloric content. The dimensions of the alimentary tract are relatively constant. The higher the requirement in calories, the more concentrated must be the diet. Therefore, hard workers choose fats and cereals. The lower the requirement in calories, the less concentrated need be the diet. Since it is undesirable to have the bulk of the diet fall below a certain minimum, the natural adaptation is to expand the use of foods of large bulk and low caloric content—namely, fruits and vegetables. After this fashion, it is possible to eat heavily in terms of satisfaction and at the same time eat lightly in terms of calories, a practicable adaptation.

Having predicated a future intake of 2,800–2,900 calories per adult man per day, how would we expect these to be distributed in terms of nutritional components? We suggest 75 grams of protein, 100 grams of fat, and 400 grams of carbohydrate per adult man per day.

Protein. The traditional American diet, like that in Canada and Australasia, has been rich in meat. Possibly some of our vigor has been due to the high protein intake; but we suspect it was due to the life in the open spaces on which the meat was raised rather than to the protein itself. The literature on experimental protein requirements, medical records on lower protein intakes, and widespread experiences of vegetarians are in agreement that high-protein rations are unnecessary. The metabolism requires daily a certain amount of amino acids and particular amino acids need to be adequately represented. Ingested in excess of metabolic requirements, protein is burned as fuel. Protein carries no special virtue as fuel, quite the contrary; a gram of starch and a gram of protein have about the same heat value, but protein leaves an acid ash and the salts and nitrogenous end-products of meats impose a labor of elimination. Ingestion of protein beyond a generous allowance for metabolic purposes entails physiological waste and is commercially uneconomic. Seventy-five grams of protein, ingested, constitute a reasonable allowance from the standpoint of the *cuisine* and a

generous allowance from the standpoint of metabolic requirements for all ages.

It would seem safe to stipulate that 20 grams of the 75 grams of protein should be in the form of milk protein, corresponding to an intake of about two-thirds of a liter of milk per day. Milk contains three valuable constituents: the proteins, that are particularly well balanced, the salts, and vitamine A. In view of the ease with which balanced salt mixtures are prepared, and the ready availability of vitamine A outside of milk, we take it that in future the protein of milk will represent its most valuable ingredient. This inference happens to agree admirably with the fact that the dairy cow is the nucleus of the most effective type of diversified agriculture.

If 20 grams of a protein ration of 75 grams are contributed by milk, this would leave 55 grams to be secured in other foodstuffs. Our diet is becoming continuously more diversified by the expanding use of fruits and vegetables. Most of these, apart from the legumes, are poor in protein; indeed, this is one of their admirable qualities. If the average cereal intake were 300 grams per day, this would contain some 25 grams of protein, and leave 20-25 grams to be covered by beef, pork, mutton, lamb, poultry, eggs and fish (depending on the fruits and vegetables in the diet).

We take it that the consumption of poultry and eggs will continue to increase, while that of beef, pork and fish will decrease. There is no way of forecasting distribution among the meats, and no purpose in doing so, since the diet in some regions will differ widely from that in others; and, within the same region, individuals will differ widely in their choice of more or less meat as against more or less cereal. I have elsewhere² suggested as possible a ration of 120 pounds of beef, pork, mutton and lamb as reasonable in the future diet. This figure may be held to be the outside limit of calories, per head, which might be modified in the direction characteristic of the *cuisine*; only in this manner can the flavors of meat be brought down to the suggested intake of 100 grams of fat per day, the largest possible in the diet.

² *Characteristic of the Diet in the United States and Canada*, Publications of the Pollack for Economic Research, No. 5, pp. 94-110.

like 25 grams, the fat content of two-thirds of a liter of milk. In addition, we take it that another 10 grams, or more, would be ingested in the form of butter fat, of which the corresponding milk protein and milk sugar would be used for domesticated animals. Possibly 10 grams of fat would be ingested incidental to the intake of cereals, fruits and vegetables. This would leave 55 grams to be ingested in eggs, poultry, beef, pork, mutton, lamb, and vegetal oils. A portion of this would be ingested with the meats, the remainder as fat or oil preparations of one kind or another. Vegetal oils may be expected to continue a prominent component of the diet; increased use of fruit and vegetables means enlarged use of salads, and salad oils are vegetal. American taste seems to favor bland vegetal cooking oils over animal fats, as illustrated in the preference for vegetal lard substitutes over lard. There is, however, no purpose in attempting to forecast the components of the fat ration, since they will vary from region to region and from individual to individual. Possibly the total figure for fat will fall below the 100 grams suggested, since fat is the fuel of hard workers; with a sedentary population, fat loses caste in the diet.

Carbohydrate. The intake of carbohydrate in all forms is set at 400 grams per day. The figures for fat and carbohydrates should not be taken rigidly, since some individuals will prefer more fat than 100 grams and less carbohydrate than 400 grams, while others will follow the opposite taste. Of the 400 grams of carbohydrate, we may be sure 100 will be in the form of sugar, and this undeterred by whether it would be agriculturally possible or not for the United States to grow this amount of sugar. The expanding use of fruits entails a high consumption of sugar. Sugar is not to be viewed as replacement of alcohol, but for various extraneous reasons sugar consumption is increased in the absence of alcohol. Of the remaining 300 grams of carbohydrate, it would be reasonable to suggest that 200-240 grams would be in the form of cereals and 60-100 grams in the form of potatoes, all other vegetables, and fruits. Here, again, it is to no purpose to segregate the components of the carbohydrate ration, since these will vary from region to region and from individual to individual.

Such an average food supply, ingested, would correspond to between 2,800 and 2,900 calories, representing some 75 grams of protein, 100 grams of fat, and 400 grams of carbohydrate. What segregation into the different classes of natural foodstuffs is to be suggested?

Composition of the Diet

It will be better to offer such a segregation, not in terms of foodstuffs as ingested, but of foodstuffs for consumption, including ingestion and waste. This may be secured in some such manner as follows:

Milk and products	550	calories
Cereals	1,300	"
Meats	600	"
Vegetal oil, nuts, fruits, vegetables.....	600	"
Sugar	450	"
<hr/>		
Total	3,500	"

This set-up is, of course, not directly comparable with 75 grams of protein, 100 grams of fat and 400 grams of carbohydrate. It is the supply, including waste, from which the average diet would be drawn.

Five hundred and fifty calories in the form of milk would correspond to two-thirds of a liter of whole milk and the butter fat of one-third of a liter. The 1,300 calories to be allotted to cereals could be secured from some such combination as wheat-flour 240 pounds, corn products 40 pounds, and other cereal products 20 pounds, per year per person. The sugar calories would require something over 100 pounds of sugar per year. The 600 calories per day to be furnished by meats could be secured in some such combination as 50 pounds of beef, 6 pounds of lamb, and 64 pounds of pork per year, average of carcass weights. The present consumption of beef and veal is in the neighborhood of 70 pounds per person per year; that of pork is nearly 90 pounds per person per year; that of mutton and lamb less than 6 pounds per person per year. Apparently, our present per capita annual consumption of poultry and eggs is not far below 30 pounds per person per year. The suggested intakes for fifty years hence

represent, therefore, a substantial reduction from the high meat intake to which we have been accustomed. With each decade, each average pound of meat will represent fewer calories, because obtained from younger and leaner animals. Therefore, one must not too rigidly translate into meat of the present composition the number of grams of protein suggested for meat in the future; the figure suggested for meat protein per day—25 grams—must not be checked rigidly against the weights suggested for the annual meat intake, namely 50 pounds of beef, 64 pounds of pork, and 6 pounds of lamb.

Vitamines and Mineral Salts

Vitamines. A few years ago it seemed that the adequate provision of vitamins would be an economic as well as a physiological problem. More recent researches, however, have made it clear that the supply of vitamins will not constitute a problem in the future. An adequate supply is crucially essential, but a surplus is not. We now possess a wide knowledge of the distribution of the five known vitamins, their concentration in various foodstuffs, and their perishability under different conditions. Also, effective advances have been made in the isolation and concentration of vitamins. Finally, recent researches on the influence of light in endowing foodstuffs with a protective action against rickets, suggest prospects for the future.

Vitamins A, B, C, D, and E are each present in a relatively large number of common foodstuffs. It is out of the question to expect each foodstuff, or even each meal, to be balanced in respect of vitamins. This conclusion is re-enforced by the fact that the body stores vitamins; thus the diet of the day does not need to provide the vitamins of the day. The expanded use of raw fruits and vegetables has extended the list of foodstuffs containing thermolabile vitamins. Diversification of the diet may be depended upon to guarantee an adequate ingestion of vitamins for all ages.

It is gradually becoming known that it is possible to prepare concentrated extracts of vitamins. Illustrations are the preparations of vitamin A in cod-liver oil and of vitamin E in the oil of the wheat-germ. We take it that for each of the vitamins sources of high concentration will become available and they

can be administered when desired. Furthermore, it seems certain that manufacturers of compounded foods will include vitamins in their preparations. One of the principal counts against butter substitutes has been lack of vitamin A, a criticism not removed by the fact that some butters are deficient in vitamin A. It is now readily possible from vegetal oils to manufacture margarine, with the addition of vitamin A, and others, if necessary, secured from appropriate sources.

Under these circumstances it seems reasonable to conclude that the problem of the vitamins is solving itself through diversification of the diet, the increased use of raw fruits and vegetables, the artificial addition of vitamins to butter substitutes and other compounded foods, and the commercial preparation of concentrated extracts. I take it that two generations hence the supply of vitamins will give no concern.

Mineral Salts. An adequate supply of mineral salts, including the essential anions and cations, is a pre-requisite of the diet. With growth of population, and in the fulfilment of sanitary precautions, the supplies of water for domestic purposes will tend to become concentrated into larger units and to undergo appropriate chemical treatment as well as filtration. This involves larger use of impounded surface waters, with less use of naturally percolated waters. This tends to influence the saline content. The correction lies in the appropriate use of salt in the preparation of food. So far as sodium chloride is concerned, the average diet is already too rich. The salt intake, however, is often unbalanced, of which lack of iodine in some regions is an illustration. It seems probable that a certain relationship of anions and cations is essential in the development of the skeleton, though the subject is not yet worked out. There is no reason why table salt should not be balanced in the same sense as the balanced salt solutions employed in experimental biology. The freer use of fruits and vegetables and milk implies increased intake of organic salts, tending to balance between anions and cations. Fruits and vegetables also, with few exceptions, leave an alkaline ash that is of importance in the avoidance of acidosis. For mineral salts, still more than for vitamins, it is long-term rather than transient effects that are sought, which simplifies the problem for oncoming generations.

Efficiencies to be Attained in Production

Beyond the present food supply, that needed for the population of 180 million fifty years hence will include five groups of increment: (a) the foodstuffs we now export; (b) those saved by reduction in waste; (c) those set free by lower per capita requirement; (d) those secured through increased out-turn in production per area and per animal, and (e) those obtained by expansion in acreage and in number of animals.

Plant Crops. The primary foodstuffs, together with the feeding stuffs required to sustain the domesticated animals needed to secure the secondary foodstuffs in the predicated diet, represent a considerable enlargement over present production. This remains true even when we transfer to domestic use the plant crops now passing into export. The needed additional amounts of grains and other plant crops would involve larger yields per acre or increase in acreage. Both may be expected to occur. Our yields of grains per acre are relatively low, not merely for intensive agriculture but also for extensive agriculture. In every state a considerable proportion of the farmers raise from a fourth to a half more per acre than is secured by the remaining farmers, and this from comparable soils. It is not necessary to use what are called "master farmers" as standards for future accomplishment. It is merely necessary to use as standard the best third and to assume that during the next two generations the majority of farmers will be able to accomplish what the best third now do. The best third of farmers fifty years hence will secure considerably larger out-turns than the best third secure today. It is reasonable to assume that fifty years hence the average yield of grain per acre, also of hay and other roughage, will be a fourth to a third larger than it is today. This predicated increase represents crop yields still substantially lower than representative yields in western Europe. Nevertheless, it is believed these added yields can be secured without transferring American agriculture from the basis of out-turn per man to out-turn per acre. The predicated yields of plant crops are conditioned on the successful control of plant diseases, a campaign which, it must be conceded, becomes more difficult with increasing population. It is to be anticipated that some expansion will occur in the use of

land devoted to the raising of industrial raw materials, a competition partly compensated for by extension in industrial uses of crop residues such as straw and corn stalks.

Milk Production. In the place allotted to milk in the diet fifty years hence, use is made of a considerably larger milk ration than is at present available. This is a point of especial importance both for nutrition and agriculture.

Production of milk per cow per year varies from less than 1,000 pounds to as much as 30,000 pounds. The average for the country is supposed to be in the neighborhood of 4,500 pounds per annum. The causes of the extraordinary variations between different cows lie in breeding, selection, and diet.

Cows belonging to selected milking strains are characterized by metabolic impulse in the direction of milk secretion. On a balanced and generous ration, the cow of beef breed will secrete little milk and lay on flesh, while the cow of milking breed will secrete much milk and lay on no flesh. Milk secretion is a specialized biological process, as breeding and cow-testing tell. The average production in Denmark and Holland is considerably higher than in the United States; the average production in some states is much higher than in others. With every decade, through selection, the average secretion is enlarged; the percentage of pure-bred cows rises, cross-breds are augmented and improved and poor milkers are culled out. Looking back over the result of the past generation, it seems reasonable to predicate for fifty years hence an average secretion of not less than 6,000 pounds, possibly closer to 7,000 pounds, per cow per year. This would be an outstanding accomplishment for the entire country, but a modest accomplishment judged by individual cows.

With a milking strain of cows, the yield of milk depends on the action of certain secretory stimulants contributed by green feeds and on the adequate supply of nutrients to cover the maintenance of the animal and the constituents of the milk, particularly the protein. The stimulatory substances of green feed are readily supplemented with ensilages. To cover protein requirements, increased use will be made of high-protein concentrates, freely available within the United States.

The present number of milch cows in the United States is some 23 million.³ The objective is not to secure more cows of the same out-turn but fewer cows with larger out-turn. Diversified agriculture rotates about the milch cow; but the progress of diversification depends on improvement in cows rather than on increasing the number of cows, since the rentability of a dairy cow is the expression of ratio of maintenance units to milk-production units.

Beef Production. Increased efficiency in production of beef is to be attained through selection of improved strains, reduction in mortality of the new-born, control of diseases, and perfected management in feeding. This all is proved practice. With each decade, beef cattle will be finished and slaughtered at an earlier age. This involves breeding for early maturity animals that tend to produce meat rather than fat. Such cattle yield a considerably higher ratio of edible meat to nutrients employed during the lifetime of the animal. In the corn belt some farmers secure half again as much live weight per unit of corn as do their neighbors. In all probability, American practice will follow that of Europe in the wider use of veal, both from beef cattle and from dairy cattle. We have several unsolved problems of cattle diseases in the United States. Our forecast does not assume, except in the case of Texas fever, that these will be eradicated; but it is proper to assume that losses due to exposure of the new-born will be reduced, and calf-crop percentage improved.

Pork Production. In the case of hogs, the next two generations will witness the gradual decline of hogs of the lard-type, with substitution of hogs of the bacon-type. This will be the result of economies to be achieved in breeding hogs of quick growth and early maturity, yielding a maximum of lean and a minimum of fat and giving a high ratio of edible meat to nutrients employed in feeding. It is wasteful to raise hogs as producers of fat, since oils physiologically comparable to lard are more cheaply produced in the plant world. Some farmers turn out a hundred pounds of live hog for eight bushels of corn, while others use a

³ A discrepancy exists in the several estimates relating to milk production. The figures for number of cows kept for milk, gross annual milk production, and annual production per cow are not in concordance. But the discrepancy does not involve the validity of our conclusions.

dozen bushels for the same return. Outstanding causes of loss in hogs are cholera parasites and death of the new-born. These are preventable diseases, and eradication is a question of effective control. The average litter of pigs in the United States is now around 3.5; it is reasonable to forecast for fifty years hence a substantial increase in the size of the litter brought to maturity. If demonstrated practices in breeding and feeding hogs, already in use with hundreds of thousands of hog raisers, could be applied to all, it is not going too far to assume that the meat out-turn might be increased 30 per cent. per average census head of hogs. The efficiency thus to be achieved would represent a large relative saving in acreage, the result of improved ratio of maintenance requirements to productive out-turn.

Sheep Production. In the case of sheep, our practice is becoming stabilized. The national herd of sheep has a dual purpose, production of meat and of wool. Agriculturally also, sheep play a rôle in the utilization of otherwise wasted forage. Sheep wear out rapidly, and since the weight of the clip of wool falls off after the third year, a term is set to the profitable life of the ewe. Public taste is in the direction of lamb and away from mutton. It is, therefore, reasonable to assume that fifty years hence sheep will have acquired a stabilized position in agriculture: the excess of male lambs will be slaughtered for food; the breeding stock will be carried along for wool production; and the obsolescent animals will be disposed of for industrial materials and tankage.

Developments in Agriculture

Based on the experiences of other countries, it is possible to adjudge the population-carrying capacity of the United States. On the basis of representative European crop yields, the United States could support some 500 million people on a largely vegetarian diet, in which cereals and legumes would form the chief sources of protein, with only such animal products as could be secured from inedible residues and forage on land not adapted to the raising of primary crops. On a lacto-vegetarian diet, something like 400 million people could be sustained. On a diet comparable to that of Germany before the war (something a little poorer than that of England, in the matter of meat supply) a

population of 350 million could be supported. With agricultural productivity increased one-half, our present food supply could be secured for possibly 300 million. These rough figures indicate in themselves how little agricultural expansion would be required to sustain a population of 180 million on the physiologically generous diet predicated above.

We are at present a relatively heavy net exporter of grain and pork products. Nearly 30 million acres (outside of cotton) are now devoted to raising produce for export. Two hundred million bushels of grain and two billion pounds of pork products contain the calories necessary to sustain some 20 million people, and our population could, therefore, increase considerably without necessitating any expansion of agriculture for grains and pork. On the other hand, we are net importers of vegetal oils and of sugar, outside our insular possessions. In our thesis, however, it was never contemplated that this country should become self-sufficient in sugar or vegetal oils, though agriculturally it could easily do so at a higher price.

What acreages planted in primary foodstuffs would be required to furnish the cereals and other plants denominated in the suggested ration for the population of 180 million people fifty years hence?

The yields of corn per acre are relatively high, those of small grains relatively low in the United States. With an increase of average yield of wheat to only 20 bushels an acre it would require something like 65 million acres to cover the predicated need for wheaten flour. The coarse grains and pasturage would require some additional acreage over the present, depending on achievements in the direction of increased efficiency in the raising of animals. We take it that the expanding requirements of fats and oils for industrial uses will necessitate larger imports into the continental United States, though possibly these may be procurable from the Philippines.

The amount of milk required (with liberal allowances for waste and use by animals) would be in the neighborhood of 160 billion pounds per annum. The present production is 120 billion pounds, the out-turn of approximately 25 million milch cows. An increase in the average out-turn from 4,500 to 6,000 pounds per annum would nearly cover the requirement. The full amount

stipulated would be secured either through a somewhat higher out-turn than 6,000 pounds per annum or by increasing the count to not over 30 million cows. In any event, it is clear that the predicated milk supply could be secured with a few more animals and with only a small increase in acreage devoted to them, directly and indirectly.

At present (averaging post-war figures) we slaughter annually something like 32 per cent. of the cattle reported on the first of the year; the average yield of dressed beef (not including edible parts other than meat, which are held to balance inedible portions of the dressed carcass) is about 340 pounds. Therefore, the average annual yield of carcass meat per census head of cattle is about 110 pounds. Fifty pounds of beef and veal per person per annum for a population of 180 million people would amount to about 9 billion pounds per annum. With the same kind of cattle we now have, this would require something like 80 million cattle. Accepting demonstrated practices in breeding, in feeding for earlier slaughter, and in reduction of mortality of the new-born, it seems reasonable to raise the figure of average out-turn from 110 pounds to 130 pounds. Using this figure, the required beef will be procurable from 70 million cattle other than milch cows, little above the present count and requiring only a small additional acreage over that now devoted directly and indirectly to cattle.

According to current practice, the ratio of slaughtered hogs to number of swine on the first of the year is a little over 1; the average return in carcass weight per slaughtered animal is about 170 pounds or about 180 pounds per census head. Assuming the replacement of lard-type hogs by bacon-type hogs, demonstrated average efficiency in feeding for early slaughter and increase in the average litter from 3.5 to 5.0, it follows that to furnish 64 pounds of pork per person per annum for a population of 180 million would require less than 70 million hogs. This figure is little above the present count of swine, and only a small increase would be required in acreage devoted directly and indirectly to the raising of hogs.

We are now slaughtering annually something like 16 million sheep for meat, which is less than 40 per cent. of the count at the first of the year. Since the average dressed weight is under 40

pounds, each census head of sheep furnishes less than 15 pounds of meat. Seventy million sheep would furnish the per capita lamb ration of 6 pounds per person for the population of 180 million fifty years hence. This number could be easily and advantageously carried, since our wool requirement will be far greater than the out-turn of that herd.

A computation of the acreage requirements of domesticated animals, at the assumed level of efficiency, indicates that something like 25 million additional acres might be required over those now correspondingly devoted to animal husbandry, in order to furnish the stated amounts of milk and meat for the population of 180 million fifty years hence. The additional acreage required for wheat and other primary foodstuffs, at an estimated increase in yield of not to exceed 25 per cent. over the present, would be something like 25 million more. In short, the population of 180 million fifty years hence (on the plane of agriculture reasonably forecasted from current practice and demonstrated improvements) might require an expansion of the agricultural plant of something like 50 million acres.

Against this predicated increase in acreage, one must set a subtraction corresponding to the relative decline in acreage requirements of animal husbandry due to shorter average term of life, larger out-turn of carcass weight per census head, and reduction in horses and mules. The reduction in number of horses and mules during the past decade has represented a saving of some 12 million acres of corn and oats and 8 million acres of hay. The recent rate of decline in horses and mules suggests a count of something like 10 million in a decade or two, which further reduction would represent the saving of another 20 million acres.

The area of the country is approximately 1,903 million acres. At the last decennial census, the land in farms was about 503 million acres, with some 365 million acres in harvested crops. About 20 per cent. of this was devoted to primary foods, 70 per cent. to harvested forage crops, and 10 per cent. to the growing of industrial materials. Domesticated animals (maintained on the present inefficient plane) now consume all of the utilized products of unimproved lands and three-fourths of the products of improved lands.

We have something like a billion acres of pasturage land, of which nearly 600 million are forest range and semi-arid land. Some 600 million acres are fit only for grazing, and we have some 335 million acres classed as humid pasture. Of some 480 million acres of forest range, only half are in pasture. We have apparently something over 200 million acres not now used for crops, pasture or forest, of which half is adapted to one of the three. The uncultivated arable land lying in farms is considerably over 40 million acres. A few million acres of land now classed as arid will be brought into use for crops through reclamation, involving an intensive form of cultivation with high yields per acre. Reclamation also will provide more water for lands already in cultivation. There can be no question that 50 million additional acres will be readily available for the predicated expansion of agriculture during the next fifty years, and this without inclusion of land deserving the term "sub-marginal."

The land in question would be sub-marginal to-day if used for raising staples for export; it will not be sub-marginal fifty years hence for the country upon a domestic basis. During the next fifty years, it seems to the writer, we shall pass from the status of a net-food exporter to that of a net-food importer. We shall need to import nothing that we could raise at home, except sugar and vegetal oils for industrial purposes; these also could be raised at home for a population of 180 million people, but we judge it will not be economic to do so. But in any event, fifty years hence with a population of 180 million people, we shall no longer be net exporters of wheat, rye, corn, barley, oats, beef, pork, lard, mutton, dairy or poultry products. We have already ceased to be net exporters of some of these; we shall cease to be net exporters of any of them. With the shift from the exporting to the domestic basis will come a shift in the definition of sub-marginal lands.

Viewed from the standpoint of agricultural potential, with the use of internal evidence of current agricultural accomplishment, without appeal to theory, we regard it as self-evident that the soil of the country will be able to provide the foodstuffs required for the stipulated diet. To one of sanguine temperament it is not at all unthinkable, or improbable, that the predicated food

supply for the predicated population fifty years hence could be raised on a farm area no larger than the maximum acreage that has already been included in agricultural operations within the United States. It is a common statement that two and a half acres of land are required to support one human being. Two hundred million people should have no trouble living well upon our continental area. The land problem fifty years hence will be for forest products, not for food supplies.

In conclusion, it remains to advert briefly to several general interrelated questions—the size of the farm population, the maintenance of soil fertility, the availability of motor fuel, and the continuation of exports. If fifty years hence agriculture has achieved the modest efficiencies predicated in earlier paragraphs, if mechanization has advanced to the extent reasonably to be anticipated, if motor fuel is available at no excessive cost, if soil fertility is maintained with the predicated number of domesticated animals and the use of chemical fertilizers, and if, finally, the agriculture thus arrived at is employed solely to feed the native population of 180 million, then the size of the agricultural population will be relatively low. If, on the other hand, these expectations do not eventuate, the farm population will remain relatively larger. It is difficult to believe that invention and improvements in implements, and advances in control of plant and animal diseases and in selection of improved strains will fail to permit of and to insure the modest improvement in efficiency that we have predicted. The development of reforestation, not included in our appraisal, seems to the writer the most difficult problem of the land.

Our present agriculture, for the most part, is based on yield per operator, not on yield per area. The next fifty years will witness some transfer from extensive to intensive farming. Improved farm machinery already available will facilitate both intensive and extensive cereal culture. Mechanical harvesting of corn and cotton are now almost perfected and will become general in the future. In other lines, improved farm implements will be conducive to intensive farming. It has been loosely assumed that intensive farming, the striving for out-turn per area, inherently implies intensive use of hand labor. This is assumed,

but we take it that the future mechanization of agriculture in the United States will be applied as effectively to intensive as to extensive farming. Also, we take it that developments in use of implements will carry with them cooperative farming on the productive side as well as in marketing.

Fertility of soil depends on methods of cultivation, contributions of natural manures by farm animals, and chemical fertilizers. With the predicated number of animals—10 million horses and mules, 30 million cows, 70 million other cattle, 70 million hogs, and 70 million sheep—the animal manures in units of nitrogen, potash, phosphate and humus would compare with present practice. This will not be enough to maintain soil fertility, and increased use will need to be made of chemical fertilizers, whose application will be cheapened by development of appropriate implements. Atmospheric fixation of nitrogen and by-product recovery of ammonia, together with the use of legumes in crop rotation, will take care of the nitrogen requirements. Phosphates we possess in abundance. Potential potash also we possess in abundance. Possibly the newly discovered deposits in Texas and New Mexico will yield cheap potash after the initial capital investments have been put in; for the rest, it seems likely that potash from the widespread and extensive deposits in the western United States will become available only at increased price. Contrasted with other regions of the world, the United States occupies a favorable position in chemical fertilizers.

Effectual replacement of manual labor by machines depends on motor fuel at relatively low price, since the cost of fuel is one of the elements in achieving low labor cost of farm operations. Hydrogenation of coal and alcoholic fermentation of straw and other crop residues are passing out of the experimental stage and entering into commercial production. Without assuming the continuing availability of cheap petroleum (from oil sands or shales), we take it that fifty years hence the use of motor-driven farm implements will not be conditioned by high cost of fuel.

With respect of continuation of exports, we face here political philosophy as well as agricultural efficiency. There are 100 per cent. mercantilists who, accepting our estimate of population fifty

years hence, believe that under intensive agriculture and mass production with the use of perfected implements, we can continue to remain large-scale exporters of staple foodstuffs. Persuaded that we shall need to use such exports to pay for essential imports, these mereantilists are constrained to believe that our production costs can be kept low enough to enable us, with remuneration to the producing class, to continue to maintain a prominent position in the export markets of the world. It seems to the writer that the mercantilist colors his expectations of production costs to fit his ideas of international trade. With full consideration of the attainment in agriculture of low labor cost with high wage level through the utilization of manifold scientific and mechanical appliances, there still remains something incongruous in the idea of a country with low birth-rate and stationary population and a high standard of living, engaged in feeding backward countries with high birth-rate, expanding population, and low standard of living. The broad proposition of the mereantilist is not proved by the fact that we now furnish small amounts of rice and raisins to China. To the writer it seems more reasonable to conclude that fifty years hence we shall have ceased to be a net exporter of staple foodstuffs, though continuing some export of specialties embodying a small contribution of soil and a large contribution of skill.

The present farm population⁴ is approximately 25 per cent. of the total population. With each decade, the out-turn of prod-

⁴ According to the United States Department of Agriculture, the farm population (people living on farms) is in the neighborhood of 28 million. We suspect it is nearer 30 million. We lack precise definition and dependable enumeration of farm population. The term rural population, as used in the census, includes inhabitants of towns up to an arbitrary figure. Mere residence on farms does not imply inclusion in farm population, if the estates are not operated commercially. Inclusion in farm population cannot be limited to full-time operators, because many lines of farming are part-time occupations whose operators seek urban employment during certain seasons. Many farms are operated, with or without hired help, by owners living in towns, and such operators ought to be included in farm population. With improvement of roads, it is to be expected that more and more farmers will live in towns rather than on their farms. The broad way to define farm population would be to include all landowners and tenants who raise farm produce for sale or for family subsistence, but even this definition would involve difficulties in classification and impose heavy labor on census officials.

uce per head of farm population rises. It does not seem unreasonable to predict that the farm population fifty years hence will not be over 35 million, or 20 per cent. of the total population. We take it for granted that fifty years hence information on economics will be so widely disseminated as to exclude the agrarian notion that it is necessary to carry a surplus farm population as insurance of the food supply. It may seem necessary to maintain standing armies and munition industries as insurance against war. But it ought not to be necessary to maintain a surplus farm population, unremuneratively employed, as insurance against shortage. It is not the size of the agrarian class, but its well-being, that is important. The problem of the future is to balance the farm output alike in the interests of maintenance of soil, remuneration to operators, and the diversified dietary of the people. The future social organization will be the product of the land, the population, the development of the arts and sciences and the standard of living.⁵

Section of Medicine, February 17, 1927

CARDIAC ASTHMA¹

MORRIS H. KAHN

The Mechanism of Dyspnea

The respiratory system gives rise to the premonitory symptoms in heart failure, of which distress in breathing, or dyspnea, in response to effort is often the earliest sign. The respiratory center in the medulla is extremely sensitive to a deficiency of oxygen or to an excess of carbon dioxide in the circulating blood. It is also sensitive to toxic products produced in the body under special conditions, to non-volatile acids such as lactic acid following exercise, and to substances introduced into the circulation that increase the hydrogen-ion concentration in the blood.

⁵ The data and computations employed above are in the nature of the subject necessarily rounded and approximate only. The argument is directed to movements and trends rather than to measurements of an exact nature.

¹ From the Department of Cardiovascular Diseases, Beth Israel Hospital.

In fact, the rate and depth of breathing are regulated by the amount of carbon dioxide which reaches the respiratory center in a given time. Hyperpnea and dyspnea are common features in heart failure, due primarily to a slowing of the circulation in the lungs with deficient elimination of carbon dioxide.

Besides, the respiratory center receives peripheral stimuli from sensory nerves of the skin as well as from the nerve terminals in the heart muscle and in the lungs. It may also be affected by changes in intracranial pressure or by vascular disturbances in its vicinity.

Hyperpnea, or air-hunger, implies an increase in the rate and depth of respirations.

With orthopnea the patient assumes the upright position of the trunk, any attempt to lie down being immediately followed by an increase in respiratory distress. It is attributable to resistance to the full pulmonary ventilation offered by the abdominal contents pressing against the diaphragm. The hydrostatic effect of the erect posture on the blood content of the abdomen and the peripheral vessels is also a factor.

Cardiac asthma is of various types and presents different degrees of severity. It occurs in a variety of conditions and apparently results from some specific stimulation of the respiratory center. Cardiac asthma is used to include Cheyne-Stokes breathing and the attacks of air-hunger that occur with myocardial disease.

Classification

It will thus be seen that the respiratory symptoms in cardiovascular diseases may result from four entirely distinct mechanisms:

1. Stimulation of the respiratory center by toxic products, excess of carbon dioxide, or non-volatile acids in the systemic circulation.
2. Irritability of the respiratory center from a deficiency of oxygen due to impaired circulation—deficient transference of blood mass.
3. Nervous-reflex mechanism from a lesion in the myocardium or aortic-coronary area, as well as from peripheral pain.
4. Intracranial alterations of pressure or disease of the cerebral vessels.

Corresponding to these mechanisms different forms of respiratory distress may be induced. These may be classified as follows:

1. Of pulmonary origin.
 - a. Congestive or simple mechanical dyspnea.
 - b. Attacks of stasis or pulmonary asthma.
 - c. Pulmonary edema.
2. Of cardiac origin (spontandyspnea or grosskreislauf-dyspnea of Wassermann).
 - a. Paroxysmal or spontaneous dyspnea.
 - b. Cheyne-Stokes breathing.
 - c. Cardiac asthma.
 - d. Uremic asthma.
3. Of cardio-reflex origin.
 - a. Cardiac asthma with angina pectoris, coronary thrombosis, and myocardial degeneration.
4. Of cerebral origin.
 - a. Periodic dyspnea with intracranial disease.
 - b. Cerebral arteriosclerotic asthma.

There are two conditions, quite individual in their pathogenesis, that have been confused in the literature under the name "cardiac asthma." In one of these (Group 1 above), the symptoms are essentially those of pulmonary congestion associated with attacks of dyspnea and wheezing, brought on often after exertion. The other forms of "cardiac asthma" (Groups II and III, above) depend upon factors in the arterial side of the circulation; i.e., the left ventricle and its ability to maintain adequately the respiratory center in normal condition of blood supply and oxygenation.

Stasis or Pulmonary Asthma

The organic conditions underlying pulmonary stasis are usually stenosis of the mitral valve, auricular fibrillation, and the advanced valvular defects that develop with increasing heart failure. There is usually also venous and liver engorgement. This form of cardiac dyspnea is obviously a more or less chronic condition. During its progress exacerbations frequently occur in the form of paroxysmal attacks of dyspnea. For these attacks, I venture to suggest the term "pulmonary asthma."

Attacks of pulmonary asthma usually develop after strain or exertion beyond the patient's wonted capacity. The patient is

compelled to rest seated or quiet in the recumbent position, and shows both inspiratory and expiratory dyspnea, orthopnea, wheezing and a varying degree of cyanosis.

On physical examination there are wheezing, sibilant moist râles scattered over the lungs, usually with signs of congestion at the bases. There also is congestion of the liver and edema of the extremities. The vital capacity is in general much diminished and falls still further during the attacks of pulmonary asthma. The attacks may last only a short time, but often are much prolonged for hours or sometimes days. They may gradually subside, or, with increasing stasis, may end in pulmonary edema. Signs of valvular involvement are present, with accentuated pulmonic second sound. The pulse is usually rapid, small, compressible, and is often completely irregular. The blood pressure is low both in the intervals and during the attacks. Oxygen is of considerable benefit in these cases.

When the pulmonary circulation is overladen with dilatation of the pulmonary capillaries, the air or vital capacity of the lungs is naturally encroached upon, producing a constant predisposition to dyspnea. Finally, the dynamics of the right side of the heart are disturbed, and the venous system begins to contain more blood.

A high degree of pulmonary stasis may be produced without causing much or any increase in pulmonary blood pressure. Pulmonary hemoptysis is frequent in these cases. A diffuse or compensatory dilatation of the pulmonary capillaries takes place in response to mechanical obstruction to the outflow of blood from the lungs.

Paroxysmal Cardiac Dyspnea—Cardiac Asthma

Quite in contrast with pulmonary asthma, the main conditions in which spontaneous or paroxysmal dyspnea occurs are the aortic lesions and coronary arterial disease. The commonly associated lesions are those of arteriosclerosis, hypertrophied heart with hypertension, pulmonary emphysema and chronic interstitial nephritis—all evidence of extensive arterial change. Cardiac asthma seldom occurs in mitral insufficiency or in uncomplicated mitral stenosis. *Pulsus alternans* is especially frequent. Anginal pains are often present.

Paroxysmal dyspnea or cardiac asthma is a frequent symptom in cases of so-called cardio-renal disease in which there is a disturbed acid-base balance of the blood.

The following is a classical description of attacks of cardiac asthma:

"The patient may have gone to bed in his usual health and after a little sleep he is awakened with a feeling of suffocation, and an intense desire to breathe deeply. He sits up in bed and breathes in deep and labored fashion. A sense of great prostration may add to his suffering. Wheezing sounds may appear in the chest; he may cough up some frothy phlegm. The attack may last for half an hour or longer; then the breathing becomes quieter and he is able to lie down, though he keeps starting up and finally assumes a position with his head and shoulders raised, passing the remainder of the night in uneasy slumber. Once these attacks begin they are apt to continue and the nights of the patient often become of great distress."

The class of case which shows this condition most characteristically is the elderly person and those who suffer from arterial and cardio-sclerosis. They frequently have a high blood pressure, and the heart is usually regular except for the presence of occasional or frequent extrasystoles. In these cases we sometimes find the best examples of the *pulsus alternans*. In most cases this symptom is a very grave sign and usually indicates an exhaustion of the heart so extreme that only a very slight improvement can be hoped for. Similar attacks of breathlessness occur at the end of the apneic stage of Cheyne-Stokes respiration.

We may add that in every case of cardiac asthma, there is evidence that dyspnea on exertion has existed for some time preceding the sudden attacks of asthma. Attacks of angina pectoris or coronary thrombosis often recur in these cases.

The onset of the attacks is sudden, the face pale, and the distress great. During the attack, the pulse is usually full and of high tension; the blood pressure increases mainly as an effect of the muscular efforts induced by air-hunger.

On physical examination the signs of congestion are often absent, but there may occur a tracheo-bronchial wheezing or snorting due to stimulation of the vagus center. The great pallor during the attacks is due to stimulation of the vasomotor center.

The most recent and accepted conception of cardiac asthma is that it is a form of paroxysmal dyspnea which is due to a deficient arterial systemic circulation producing a central anoxemia. This is the crucial cause of dyspnea, and, in this sense, it covers the group of conditions in which the dyspnea is sudden in its onset, usually at night, spontaneous in its origin, paroxysmal in its recurrence, and in the usual attack does not go on to pulmonary edema.

Cardiac asthma is essentially a respiratory-center phenomenon, the result of increased sensitiveness of the center, produced by prolonged anoxemia.

The sequence of events producing attacks of paroxysmal dyspnea is as follows: The stimulus reaches the respiratory center through the arterial circulation; the center reacts in a specific way by a peripheral stimulus to the lungs; dyspnea develops, increasing the pulmonary ventilation and the heart rate. As a result, the irritability of the respiratory center lessens and the paroxysm of dyspnea subsides. If the ventilation of the lungs is inadequate, the dyspnea increases, at the same time stimulating the adjacent vital centers, particularly the vasomotor and vagus.

The vasomotor effect is a constriction of the peripheral arterioles producing marked pallor of the skin. The vagus effect produces constriction of the tracheo-bronchial musculature, increasing the mechanical efforts to breathe.

The outcome of an attack may be twofold: If the aeration does not become adequate, paralysis of the respiratory center may result and death suddenly ensues during the attack of gasping for breath. The second eventuality is heart failure. The left ventricle dilates as a result of the continued peripheral resistance.

Dynamically, the left ventricle serves two purposes: (1) The filling of the systemic circulation, and (2) its diastolic effect is that of relieving the pulmonary circulation. It is the distinction between these effects that separates what I have called "pulmonary asthma" from cardiac asthma. Cardiac asthma is due to the propulsive weakness of the left ventricle.

The mechanism by which the attack subsides also implies this; the main effects of the attack being the transference of the

blood mass from the abdomen by vasoconstrictor action and by muscular movement.

Morphine lowers the irritability of the respiratory center, making it less sensitive to anoxemia. The value of nitroglycerine lies in the improvement of the cerebral circulation which results from widening of the intracranial vessels. Inhalation of carbon dioxide sometimes is beneficial, although the exact reason for the benefit is not known. The administration of oxygen in these cases does not give relief.

Relation of Angina Pectoris to Cardiac Asthma

In addition to the above theories, there is a reflex element as a factor in the production of these attacks. Usually an attack of angina pectoris with coronary thrombosis takes place first in these cases, producing left ventricular deficiency, and attacks of cardiac asthma are a later development. There exists a reflex mechanism between the aorta and the respiration. Irritation of the heart or aorta may produce respiratory phenomena such as spasm of the larynx and bronchi. The severe attacks of cardiac asthma resemble attacks of coronary thrombosis.

The dyspnea that is associated with angina pectoris can have two explanations: (1) That it is reflex in its mechanism, from the heart to the respiratory center and reflexly to the lungs; (2) that it is due to cardiac insufficiency.

Differential Diagnosis from Bronchial Asthma

Pulmonary and cardiac asthma are shown to be distinct entities. They are in no way related to essential or bronchial asthma. Pulmonary asthma and paroxysmal cardiac dyspnea frequently co-exist during the advance of myocardial degeneration.

Case 1.—Mrs. G. D., aged 39 years, suffered from dyspnea and palpitation and had a well-developed rheumatic mitral regurgitation and stenosis. She had had sudden attacks of cough, wheezing and hemoptysis, which recurred after excitement or exertion and were relieved by rest. These often continued for several days at a time both when the patient was awake and during sleep.

High-pitched and moist râles were found scattered over both lungs. These were attacks of pulmonary asthma.

The patient improved remarkably under digitalis medication so that the lung signs cleared and the vital capacity increased.

Case 2.—Mrs. B. K., aged 42 years, had mitral stenosis and auricular fibrillation. She had had periods of decompensation with moderate edema and pulmonary asthma for which she had to remain in bed for several days at a time.

In these attacks she was slightly cyanosed. The lungs showed scattered moist râles and dry bronchitic wheezing. The liver was enlarged and there was moderate pretibial edema. The vital capacity of the lungs was much below normal. The electrocardiogram showed right ventricular preponderance and auricular flutter which, under digitalis medication, changed to coarse auricular fibrillation.

At one time she had a sudden attack of burning pain and a sense of vise-like compression across the lower chest which soon diffused upward, radiating to the left pectoral region and both scapulae. This lasted ten minutes and left her very weak for several hours. The pain recurred together with attacks of characteristic cardiac asthma with gasping breath, dyspnea, orthopnea, wheezing, cough and expectoration.

Summary.—Long standing mitral stenosis; auricular flutter and fibrillation; repeated attacks of decompensation with pulmonary asthma; angina pectoris, recurring together with attacks of cardiac asthma.

Case 3.—A. G., aged 67 years, had for three years asthmatic attacks which occurred after exertion, with marked dyspnea and slight cough. In the attacks he panted for breath with a grunting sound.

The heart was obscured by emphysematous lung, and its sounds were not audible over the apex. The pulmonary second sound was louder than the aortic. There was a moderate arcus senilis and cyanosis of the mucous membranes. Blood pressure was 128/82 with *pulsus alternans*. The electrocardiogram showed marked arborization block and the QRS wave was widened to 0.14 of a second. Urine contained albumin and hyalin casts.

Summary.—Senile arteriosclerotic myocarditis; prodromal anginal symptoms; cardiac asthma.

Case 4.—J. S. M., aged 65, had an attack of coronary thrombosis five years before with acute pulmonary edema.

For two years he had suffered increasing dyspnea and at times slight cyanosis, both of which were relieved by oxygen inhalation and rest. In these attacks, often for days, the patient reclined on pillows or in a chair slightly cyanosed, dyspneic, wheezing and coughing. He developed considerable edema of the feet and legs and a moderate degree of ascites with the liver markedly enlarged. Heart was enlarged to left, the first sound weak. The urine showed albumin and casts.

During the past year, often when just about to fall asleep, he awakes with a feeling of breathlessness for which he has to walk about or sit in a chair for perhaps fifteen minutes, and then again attempts to sleep. These are typical attacks of cardiac asthma.

Case 5.—M. R., 46 years old, gave a family history of "asthma." His father died of "asthma" at the age of 65, and one brother and paternal grandfather died of "asthma." At the age of 40 he had a sudden attack of vise-like pain in the chest with a severe gripping pain in the left elbow. This lasted a few minutes and recurred often with a sensation of suffocation and air-hunger. During the night he would awake with attacks of compelling dyspnea in which he had to get out of bed and stand supported against a wall, gasping for breath. These lasted a few hours and sometimes the entire night. He had no wheezing during the attacks. Often, when the patient fell asleep, he had typical Cheyne-Stokes breathing.

The patient had a sallow, pale complexion. His heart was enlarged both to the left and right, its apex seen and felt in the Pulmonaryc. At the apex, the sounds were weak and the first co-exist during poor muscular quality. The pulmonic second sound

Case 1.—Mrs. Able than the aortic. Occasional ventricular prepalpitation and hurried. The pulse was small and there was tation and stenosis. The blood pressure varied between 102/90 wheezing and hemoptis, with aggravation of the condition, became exertion and were relieved down to the level of the navel, and several days at a time edema developed. The urine contained during sleep. e and broad granular casts. The poly-

High-pitched and moist *pulsus alternans*. lungs. These were attacks

The electrocardiogram showed low voltage, right ventricular preponderance; the P wave high, wide and notched in lead II; and the QRS wave was often of nodal origin and aberrant.

Summary.—Angina pectoris; chronic myocarditis; *pulsus alternans*; Cheyne-Stokes breathing; attacks of cardiac asthma.

CONCLUSIONS

There are, therefore, basically, two different forms of cardiac dyspnea. One depends upon the stasis in the pulmonary circulation associated with right ventricular deficiency, which I designate "pulmonary asthma." It also develops in the last stages of left ventricular failure. The other depends on deficiency of the left ventricle alone, with irritability of the respiratory center producing reflexly attacks of paroxysmal dyspnea or cardiac asthma.

A useful clinical classification is presented of the various forms of dyspnea in the course of heart disease, based upon the physiological mechanism of dyspnea.

Pulmonary asthma is distinguished from paroxysmal cardiac dyspnea or cardiac asthma.

The organic conditions underlying pulmonary asthma are the marked valvular defects that develop with increasing heart failure in the course of chronic myocardial disease or chronic valvular disease. These attacks are characterized by their onset after strain, with both inspiratory and expiratory dyspnea, wheezing, congestion at the bases of the lungs, and cyanosis. The vital capacity, previously below normal, is further diminished by stasis in the pulmonary capillaries. The condition may progress to pulmonary edema.

The main conditions in which paroxysmal cardiac dyspnea occurs are the aortic lesions and coronary artery disease; usually in elderly people. The attacks occur suddenly, commonly at night, with marked pallor, cold sweat and a feeling of anxiety or a suffocating oppression in the chest. The patient may jump out of bed, gasping for breath. They resemble attacks of coronary thrombosis. The dyspnea, marked pallor and the tracheo-bronchial wheezing are explained by stimulation of the respiratory, vasomotor, and the vagal centers in the brain respectively, by anoxemia due to insufficiency of the propulsive force of the

left ventricle (Wassermann). These attacks are relieved by morphine which depresses the respiratory center, or by nitrites which improve its circulation.

Pulmonary asthma and paroxysmal cardiac dyspnea frequently co-exist during the advanced stages of myocardial degeneration.

Cases are presented, illustrating both forms of cardiac dyspnea, with a statement of their differential diagnosis from bronchial asthma.

Section of Neurology and Psychiatry, April 12, 1927

THE MYASTHENIC SYNDROME

PRESENTATION OF PATIENT AND CASE ANALYSIS

CHARLES A. MCKENDREE

The patient presented this evening demonstrates the syndrome of Myasthenia Gravis in many respects. But it is a matter of interest that there are certain signs referable to an encephalitic etiology. I thought it worth while to present her because the onset was quite in keeping with our understanding of Myasthenia Gravis, the etiology and pathology of which are little understood. And yet, in this particular case there are signs, however slight, which I believe are sufficient to designate the syndrome as due to an inflammatory lesion of the central nervous system.

Patient: F. S. (Neurological Institute, No. A-12833-H.), aged 21, single, female, occupation—housework. Admitted October 18, 1926.

History:

Chief complaints: Marked fatiguability.

Date of onset of first symptom: February or March of 1919.

Character of the first symptom: General muscular weakness.

Onset—Slow and insidious.

Course—Progressive, then intermittent.

Present illness:

During the fall of 1918, the patient had a slight attack of influenza which kept her in bed for about one day, following which she seemed to be perfectly well. During February or March of

1919, the patient first began to experience generalized muscular weakness. Her first incapacitating symptom, after the onset of the gradual increase in weakness, occurred on March 1st while walking down the stairs; her knees gave way and she fell down. She attempted to get up and walk and felt weak and shaky. She went home, walking a distance of eight blocks, and during this walk she had to rest at about every block. She fell at least twice on the way home. Following the onset of the disturbance in February, she also noticed that while in school she could not read aloud as long as she could prior to this time and, in fact, she had to give up reading in one of the lower classes in school because she became so easily fatigued. She said that her tongue felt tense and that she could not bring out the words as she could before she became fatigued. After her falling experience on the stairs and going home she was forced to give up her gymnasium work because of the fact that she became so extremely fatigued upon any even inconsiderable exercise. At about this time the patient had been under a somewhat greater mental strain, as she was studying hard to graduate from school.

Following this onset the symptoms progressed over the course of the next two years until in the summer of 1921 she could take only a few steps across a floor and then would be obliged to hold the knees rigid in order to keep from falling to the floor. She could not feed herself on account of the weakness in her arms, her eyelids drooped, and she states that on account of the drooping of the eyelids she felt very sleepy. She would fall off to sleep if she lay down at any time of the day. It was extremely difficult for her to talk, she could swallow but very little and tired very easily.

Toward the end of that summer, while at a beach, she began to improve and she has never been in so bad a condition since, as she was during that summer. There has been, however, a continuation of the easy fatiguability, of the interference with reading, with swallowing and with her general activity which has varied during these years. The variation may be daily; one day she may feel considerably stronger and then the next day not nearly so capable of carrying on her duties. She reacts very well to rest and improves considerably if rest is enforced. She has no idea what days are going to be good days and the condition of weakness may come on in an hour or so.

During the summer of 1925 the patient spent her summer at the beach, and on one occasion felt unusually well so that she could run, jump and even walked a mile by herself. This remission was of very short duration and the rest of the day she felt about as before.

During the past few years her vision has tired very quickly and when she becomes tired she experiences double vision, the objects being apparently side by side. This condition clears up with rest. Usually when looking ahead the vision is not disturbed by any diplopia but when extremely tired the diplopia may come on even when looking straight ahead. For the same length of time she has noticed a rather decreasing ability to look to the side or up and down with any facility. Writing, walking, chewing, talking, in fact every act consisting of continued muscular effort has been greatly impaired due to this ready fatigability. When very tired she has noticed that she may have a tremor about the lips.

In March, 1926, she was advised to have her tonsils removed and following this operation she staid in bed for 36 hours. On the next day she felt much stronger but later the weakness returned. Over the entire course of her illness the patient has noticed a decreased ability to learn and remember things. She has not been concerned or worried to any great degree about her difficulty.

PAST HISTORY:

Injuries and diseases: Between the ages of five and seven she was struck on the head with an icicle which cut her eye. Her tonsils were removed in March, 1925, under ether and she made a good recovery. She had diplopia in childhood, also measles and mumps. She is still said to have tonsilitis occasionally. She had malarial fever when a child and influenza in 1918. Her vision is good except for the fatiguability. Five years ago she slept from 8 P. M. to 11 A. M. When eight to ten years of age her mother said she had a habit of moving the mouth and lips.

PERSONAL HISTORY: The patient was in the 8th grade in school when she was fourteen years of age. She takes no tea or coffee, does not smoke or use drugs. She sleeps very well, perhaps her sleeping being pathologically increased. Her appetite is good;

she occasionally takes a little wine. Her bowels are constipated. Urination eight to ten times a day, none at night. Her periods are regular.

FAMILY HISTORY: The patient's mother and father are living and well; she has two brothers and one sister also living and well. The brother is nervous but the patient thinks this is from overwork. He is of the same general habitus as the patient and he used to see double but attributed this to eye weakness.

PHYSICAL EXAMINATION:

General Appearance and Coöperation: The patient coöperates perfectly within the extent of her ability to do so museularly. She presents a somewhat peculiar appearance; the eyes are slightly prominent and do not seem to be exactly the same axis; if anything, the right seems to show a very slight divergent strabismus. There is at times a definite widening of the palpebral fissures of both eyes and the appearance of a transient exophthalmos. She does not appear to be acutely or chronically ill, but there is at the same time an appearance of fatigue in the facial expression.

Abnormal Attitudes and Deformities: None other than the peculiarities mentioned under the general appearance.

Gait: The gait is normal for the first few steps but then becomes halting and that of a much fatigued individual. These peculiarities are brought out upon the other tests for the gait. The associated movements of the arms, head and trunk are present but reduced in extent.

Coordination: The patient is right-handed.

Equilibratory: The patient stands well with the feet together, with the eyes open and closed, and also on one foot, but has some difficulty in maintaining her balance, not sufficiently, however, to be pathological.

Non-equilibratory: The finger to nose test is normally performed as is also the finger to finger test. The finger to thumb test is well performed but she tires very rapidly. The past-pointing test is poorly done on account of the musculé disturbance but she shows no constant lateral deviation. The tests of the lower extremities are well performed the first few times but become imperfect if continued. Succession movements are poorly

performed chiefly on account of the recent weakness which affects the check element.

Skilled Acts: She writes well, the speech is normal except upon continued effort when the expulsive effort becomes much weaker, the voice becomes husky and the sounds somewhat indistinct.

Abnormal Involuntary Movements: None were noted, except for occasional protrusion and retraction movements of the tongue.

<i>Reflexes deep</i>	Left	Right
Pectoral	2+	2
Biceps	2+	2
Radial	2	2
Triceps	2	2
Ulnar	2	2
Wrist	2	2
Hamstring	2	2
Suprapatellar	2	2
Patellar	3	3
Achilles	2	2
Periosteal, Cr.	0	0
Periosteal, Uner.	P	P

<i>Superficial</i>		
Upper lat. abdom.	0	0
Lower lat. abdom.	0	0
Plantar flexion	0	0
Hoffman's sign	0	0
Babinski	0	0
Chaddock	0	0
Öppenheim	0	0
Gordon	0	0
Schaefer	0	0

Muscle Strength: The muscle power throughout is poor except possibly in the musculature of the forearm and the hands where the grasp is well maintained for a short time, then it fatigues. The muscles of the shoulder girdle are quite weak, being unable to withstand any considerable pressure. The same is true of the muscles of the hip and pelvic girdle, while the extensors of the leg on the thigh are good for a brief period and then they readily fatigue. In testing the forearm muscles she clasped and unclasped her fist ninety times in succession without any very marked fatigue. The effort, however, was not very active.

Muscle Status: The muscle tone is rather poor, the muscles throughout being rather soft and flabby.

Electrical Reactions: The electrical reactions showed the normal excitability to faradic current, and the correct polarity in the galvanic reaction was present and for all muscles tested. Faradic stimulation showed maintenance of tetanic contraction with application of the faradic current. It is thought that after forty consecutive stimulations the left ulnar nerve musculature showed some signs of fatigue. In none of these muscles was there the typical myasthenic reaction.

Abnormal Associated Movements: There were none.

Meningeal Irritation: Negative; no Kernig.

Sensory Examination: The sensory examination was normal throughout.

CRANIAL NERVES:

Olfactory Nerve: The patient recognizes and names alcohol and vinegar readily.

Optic Nerve: The visual acuity is normal in both eyes; the fields are complete and the fundi are normal although the discs are somewhat oval vertically.

Oculomotor Apparatus: The pupils are equal, measuring 5 mm. each in diameter, round and regular in shape, central in position. They react to light, both direct and consensually normally, and the reaction to convergence and accommodation is only fair in both eyes, as there is a slight transient exophthalmos in both eyes which is greater in the left than in the right eye. There is a slight external strabismus which adds to the peculiar expression supplied by the exophthalmos. The movements of the eyes are very much restricted. The movement of the right eye to the right is very poor; there is almost no upward or downward movement in the right eye. The movement of the right eye inward is good; this same thing is true of the left eye but to a less extent. There is no definite nystagmus. The palpebral fissures are unequal, the left being greater than the right. At times there is a tendency to a ptosis.

Trigeminal Nerve: Normal in the motor and sensory divisions.

Facial Nerve: The movements of the facial muscles in expression are rather reduced; there is no definite weakness in the voli-

tional control except upon continued use of the facial muscles.

Acoustic Nerve: Normal.

Glossopharyngeus and Vagus Nerves: Normal.

Spinal Accessory Nerve: Normal.

Hypoglossus Nerve and Tongue: Normal except for the fatigability evidenced in the muscles of phonation and deglutition. The tongue protrudes up the midline but the movement of the tongue becomes weakened upon continued exertion. There are occasional protrusion movements observed.

SYSTEMIC EXAMINATION:

Tegumentary System: Normal.

Glandular Status: No apparent increase in the size of the thyroid, nor any indication of persistence of the thymus. The tonsils have been removed and there is no lymphadenopathy.

Cardiovascular Status: The pulse rate is quite variable, between 78 and 120 beats per minute. There is a considerable *sinus arrhythmia* which may account for the marked variations which are noted in the pulse rate; there are no murmurs heard and the heart is normal in size and outline. Blood pressure 110/68.

Respiratory System: The respirations rate varied 18 and 20, no abnormalities being noted.

Gastro-intestinal System: Normal.

Genito-urinary System: Negative.

Skeletal System: Normal.

Mental Status: Normal.

LABORATORY EXAMINATIONS:

<i>Blood:</i> Hemoglobin	75 per cent.
Color index .....	.95
R. B. C.	3,900,000 per cubic mm.
W. B. C.	7,200 " " "
Neutrophiles	70 per cent.
Small lymphs	28 " "
Large monos.	2 " "
Wassermann	negative.
Urea	26 mgs. per 100 cc. of blood
Urea N.	12.1 " " " " " "
Sugar .....	.083 per cent.

Spinal Fluid

Color	clear
Pressure	normal
Cells	6
Globulin	—
Wassermann	negative
Colloidal gold	negative
Protein	28 mgs.

<i>Urine:</i> Color	light amber
Reaction	acid
Sp. gr.	1020
Albumin	0
Sugar	0
Indican	0
Pus cells	few leucocytes
Epithelia	squamous
<i>Basal metabolic rate</i>	+ 8

X-ray Examinations: Examination of the thorax shows a slightly-increased shadow in the superior mediastinum with a very slight deviation of the trachea to the left. The apices are clear. The increased shadow noted may be due to a persistent thymus gland, although the shadow is not characteristically shaped.

Examination of the skull shows nothing remarkable about the calvarium. The circulatory channels are normally visible as are also the convolutional digitations. A small deposit of calcium is noted in the pineal gland. The basal angle is normal. The sella is shallow, somewhat angular but not wide open. Petroclinoid bridging is beginning to form on the left. The air cell development appears normal.

This patient has a history of a very slight infection antedating the appearance of symptoms by a few months. She had drowsiness two years later. There have been characteristic remissions in symptoms. We see her now eight years after the onset, in what she maintains to be a better condition than that of six years ago.

The protrusion and retraction movements of the tongue which we have observed here to-night are seen in post-encephalitic cases, but never, in my experience, in the classical cases of myasthenia gravis. These, combined with the history of infection, drowsiness and a generally maintained improvement in recent years, impress me with the probability of an encephalitis being the etiological factor in this case.

HOW YOUNG DOCTORS SHOULD BEHAVE¹

CHARLES L. DANA

Gentlemen:

You may have heard the story of the young medical graduate. Soon after he had received his diploma, a friend said: "Well, doctor, are you going to get married or are you going to practice medicine?" "Why, sir," he replied, "I think that the latter course will be the safer one."

I do not wish you to feel that I have any bias in favor of this answer or of one implying an opposite standpoint. Perhaps, after all, the safest form of personal activity on the part of you graduates would be to follow both pursuits. If there is *danger* in each of them, there would seem to be just now a feeling that *danger* is a distinct advantage in a man's career. This is evidently an epoch for heroes, of heroes with a capital "H." For now the hero not only does great deeds, but always has his picture on the front page, and greatly increases newspaper circulation. Heroism is certainly a commendable thing. It is, in my opinion, however, much more common and less dramatic than is being made out just now. Heroism involves courage, skill, daring and initiative. It seems that all these qualities are needed, or may be employed in the career you have chosen. I wish you may have a good share of them all, and that a quiet, unexploited heroism may be part of your lot.

There is a great deal of lament expressed nowadays over the fading away of the general practitioner and especially of the country doctor. Medical men want to be near a hospital and a

¹ Address to the Fourth Class Students, Cornell Medical College, 1927.

laboratory and some teaching institution, and they want to be where doctors come together, not to quarrel, but to stimulate each other's interest and keep in touch with medical progress. This is a natural state of mind. It shows itself very concretely in medical students. All of those whom I meet now and question say that they are "going to stay in New York." They are not sure whether they will get married or practice medicine, but of this they are sure, they are going to stay in New York. Personally I am not quite so sure that they are. Flying and the automobile have made the country doctor able to live in a large city or town and still look after the rural sick. Now that the heroes of aviation have exploited their profession, one can feel somewhat assured that commercial aviation is coming to pass; then the doctor will have a flying machine with which to make his rounds. You may all be good country doctors, yet be able to fly down here to New York every week, hear a lecture and see what is going on in the clinic, or pass an evening at a meeting in the New York Academy of Medicine.

So I say here, gentlemen, marry, practice medicine, and learn to fly. Here is strength to your vestibular nerve!

I am sure you have been told many times how you ought to behave when you are physicians. It is all put down in the Oath of Hippocrates, which you ought to hang in your office and keep in the lining of your hat.

Medical men, perhaps, have to look after their behavior more seriously than any other class. The practice of medicine is *three-fourths behavior, i.e.,* of knowing how to manage people, and only *one-fourth technique*. Trained physicians have wondered how it happened that for over a generation homeopathy was the most successful form of medical practice socially and commercially in New York City! The reason of this I happen to know, because I saw and was part of the phenomenon. It was because the homeopaths were better dressed and had better manners. Not having any asset in the shape of scientific knowledge or therapeutic skill they had to, and did, fall back on a faultless etiquette. We have learned, I think, something from them. Ladies do not like shabby clothes and careless manners. They will select the doctor who is presentable over one who is unpresentable—and it is the women who decide as to who will be the family doctor.

Now that I am on the subject of the theory of human medical conduct, I want to read you a certain document which shows the point of view of the East Indian on this subject as given long before the time of Hippocrates. It is shown in a document known as

“THE OATH OF THE HINDU PHYSICIAN”

“You must be chaste and abstemious, speak the truth, not eat meat. Care for the good of all living beings, devote yourself to the healing of the sick even if your life be lost by your work. Do the sick no harm. Not even in thought, seek another’s wife or goods. Be simply clothed and drink no intoxicant, speak clearly, gently, truly, properly, consider time and place, always seek to grow in knowledge.

“Do not treat women except their men be present, never take a present from a woman without her husband’s consent.

“When the physician enters a house accompanied by a man suitable to introduce him there, he must pay attention to all the rules of behavior in dress, deportment and attitude. Once with his patient, he must in word and thought attend to nothing but his patient’s case and what concerns it.

“What happens in the house must not be mentioned outside, nor must he speak of possible death to his patient, if such speech is liable to injure him or any one else.

“In face of Gods and man, you can take upon yourself these vows; may all the Gods aid you if you abide thereby; otherwise may all the Gods and the Sacra before which we stand be against you, and the pupil shall consent to this, saying, so be it.”

Let me add to this rather strenuous document a few words of personal advice. When you get to your work, do not quarrel or speak ill of your fellow-workers and competitors. Try to find some nice things to say about them. This is that part of professional life which, as Cicero said, brings you nearer to the gods.

In conclusion let me make a suggestion gained from a rather long experience.

Do your work and study your cases intensely; make it the real and leading interest of your life; but have a *recreation* as well as an *avocation*. I do not say have a “hobby,” I do not like that

word; it means a dominance of feeling over judgment; but have an *interest* that is non-professional. Be a collector, for example, of stamps or automobiles, or old books, or neckties or pins; or find diversion in some collateral branch of science; the lore of birds, of fishing, and shooting. Make a garden or cultivate shrubs and flowers. These kinds of activities will make your life happier and your professional character more attractive and effective. Love and learn a little poetry and keep also in your pocket or hanging on the wall these words:

“THE SET OF THE SAIL”

“One ship drives east and another drives west,
With the selfsame winds that blow,
’Tis the set of the sails
And not the gales
Which tell us the way to go.

“Like the winds of the sea are the winds of fate,
As we voyage along through life.
’Tis the set of the soul
That decides the goal
And not the calm or the strife.”

It may seem to you rather curious that I should say in conclusion that you should be “religious.” I do not mean that you should join a church, as some do, in order to get larger social relations and thereby increase their practice. I mean that the religious feeling is one of the instinctive attributes of man, as most people must realize, and as Henry Rutgers Marshall has very logically demonstrated in his work, “Instinct and Reason.”

A capacity for religious feeling is one of the essential attributes of a normal and veritably well-rounded character—and he who ignores it cripples his personality. I advise you to cultivate this type of feeling just as you would cultivate, with less real benefit, your muscular efficiency and your various organic functions.

You are graduates of an unsectarian university, and religious forms, as I understand, are not encouraged here, but your regular classical work does not, I hope, exclude a desire for a reverent attitude and some personal reaction toward that extraordinary power which develops “star dust” into man.

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ANNOUNCEMENT

At the time of the opening of the new building last November an exhibition of "Early and Later Medical Americana" was arranged by the Exhibits Committee. A catalogue of this, containing twenty illustrative plates and many biographical and bibliographical notes, has now been printed. Those who are interested may obtain a copy in the Library.

IN MEMORIAM: DR. THOMAS W. SALMON¹

The history of events is the history of men. The great body of men in any group—political, military, social, or be it professional, such as medicine, law, theology, education—contributes not a great deal to events. No professional group can rise much above the median of the general population; its intelligence, its culture, its emotional hindrances cannot be much above the general group from which it comes and in which it lives. Many must be dull, many must be routinists and time-servers, carrying on by rote what they have learned from their preceptors. There can be few—for any given time there are few in any general population—who have qualities so combined as to make it possible for them to change the current of events in any large way. This does not mean that they are unimportant. The integrity of a group or profession is dependent upon them, and the social value of the group is to be measured not by the occasional “biological sport,” if you will, who is not representative of the whole, but by the average of the units composing the group. Each contributes his part in the maintenance of the group or profession, and the group as a whole may change mightily the course of social events, although the group moves across time as a sluggish river. However, events or change of current within the group, or even events or change of current in the relation of the group to contiguous territory or other groups, are made by men, in any given instance by a man, one who in his personality and character possesses a combination of qualities which we always recognize as rare. In the field of science those who have changed events have had intelligence and imagination—Virchow, Pasteur, Wassermann, Kraepelin, Freud, Starling, Darwin, Einstein, Millikan. Many men have intelligence, but not a few are unable to use the rare intelligence they have because of emotional handicaps. Many with intelligence lack imagination; many have imagination so unbridled as to be a pitfall; only a few in any given generation have intelligence and imagination combined in such a way as to cause them to stand out as more effective than their fellows. Through them events take place, history is changed, and man continues his conquest of the world and his own development.

¹ Delivered before the Section of Neurology and Psychiatry, October 11, 1927.

In those fields which combine science with living, which, if you will, relate science to life, represented by several professional groups, but by none more importantly, perhaps, than medicine, a still rarer combination of qualities is necessary—intelligence, imagination, and fine feeling. It is the latter that is the stumbling block. A hair may disturb the delicate balance when one is to weigh the quality which we can only name as fine feeling, sensitiveness, or a certain sensitiveness to living. A hair's weight too much, too little—the danger is greatest perhaps that it will be too much and change sentiment into sentimentality—and the combination is lost for greatest effectiveness. When occasionally this combination appears in an individual, that individual influences events that ten thousand men without this special combination of qualities cannot change.

I do not believe that under the circumstances of my writing I stress these qualities because Salmon possessed them; I believe I have been objective in arriving at them only to find that he had them. But whether or no, they were the qualities that are in evidence throughout all his work—in private practice, in the state hospital, in the Public Health Service, in the manifold activities of The National Committee for Mental Hygiene, in the psychiatric work of the Army, in the work of the Veterans' Bureau, in the planning of the new psychiatric center at Columbia University—qualities which made his work so strikingly effective, and made it possible to influence the course of events in American medicine, in the field of psychiatry and in contiguous social fields. They were the qualities, too, which tied men to him in a fine and close personal relationship.

Dr. Salmon, on receiving his diploma from the Albany Medical College in 1899, began his work as a private practitioner at Brewster, New York. Ill health developed and it was necessary for him to spend some time in the Adirondacks recuperating. Following his return to health, he entered the New York State Hospital Service as an assistant physician at the Willard State Hospital. This turned out to be an important step in his life, not only in that it gave him his first contact with psychiatric problems, which later came to be his main interest, but that it brought him in touch with Dr. William L. Russell, who at that time was also a member of the staff of the Willard State Hospital. A

friendship and professional relationship developed which continued throughout Dr. Salmon's life, and influenced in many ways his subsequent career. It is not generally known, perhaps, that during his period at the Willard State Hospital, Dr. Salmon studied a diphtheria epidemic that developed there and published two papers in regard to it. Probably because of his experiences in this epidemic, he seems to have become more interested for the moment in epidemiology than in psychiatry, and in 1903 he entered the United States Public Health Service. Here, however, he found other problems than those of epidemiology to challenge him—the neglect of deep-sea fishermen, for whom he advocated a hospital ship, which was eventually obtained; the problem of proper, even human care of insane immigrants held for deportation; the devising of methods for psychiatric examination of immigrants, and the like. Dr. Salmon contributed to other departments in the United States Public Health Service, but his chief service, perhaps, was in relation to the immigration service, to which he was assigned in 1905, and in this service to the examination and care of the insane. The time may not yet have come for writing the full history of the events of those days, and it is probably enough to say now that at that time, as a young man, he showed the same fearlessness and quiet courage, persistence and resourcefulness in the face of what would seem to be almost insurmountable obstacles, that he showed later as a mature man in meeting his part of the problems of a world crisis. Although he did not come off in this contest with indifference, bureaucracy and red tape the complete victor, he accomplished much, and his accomplishments were the beginning of the development of an adequate psychiatric service for immigrants at Ellis Island. This has meant much, both in the protection of immigrants, and in the protection of the country against the entrance of immigrants who, because of their mental condition, would become dependent upon the charities of various states. So serious had this situation become—the dependence of insane immigrants upon public charities—that the state of New York, probably the greatest sufferer, appointed a board of alienists to study the matter and, in 1911, Dr. Salmon obtained leave of absence from the United States Public Health Service to become the chief medical examiner of this New York State Board. From his work with this Board developed important protective legislation.

In 1909 there had been formed in New York, through the effort of Mr. Clifford W. Beers, and the assistance of such men as Professor William James, Dr. Adolf Meyer, Dr. August Hoeh, Dr. William Mabon, and Dr. William L. Russell, an organization known as The National Committee for Mental Hygiene. This Committee had as its plan the improvement of the care of the insane throughout the country. When the plans had been sufficiently matured to warrant the employment of a younger man to undertake certain studies for the Committee, a fund for the purpose having been obtained, the Committee turned to Dr. Salmon who, in the years just previous, in his work in the immigration service and with the New York State Board of Alienists, had shown the qualities of intelligence and courageous leadership that the work demanded, and in 1912, with leave of absence from the United States Public Health Service, Dr. Salmon undertook for The National Committee for Mental Hygiene a special study of hospitals caring for patients with mental disease. He continued on leave from the United States Public Health Service until 1915, when, adequate funds having been obtained for the work of the Committee, he resigned from the United States Public Health Service and became the first Medical Director of The National Committee for Mental Hygiene. He remained as Medical Director of the Committee until January 1, 1922, when he resigned to enter private practice, having been appointed in 1921 Professor of Psychiatry at Columbia University.

When one contemplates his accomplishments, it does not seem possible that in this period of years, 1912-1922, only five were devoted to laying foundations for the work of the National Committee, the other five having been devoted largely to war work of one kind or another. To be sure, the work during the war grew out of the work he had been doing and the foundations he had laid during the years 1912-1917, and the success of the work during the war reacted favorably in the subsequent development of the work he had previously planned. But it is not so much to the result I refer as to the amount of planning and getting under way that was accomplished during those five years, 1912-1917. There was nothing spectacular about that work. It did not attract great public attention as so many public health movements have done in their beginning. It

was solid, intelligent work that could have been planned only by one who sensed the significance of what he was doing, who saw clearly and looked well to the future. A library was established—not just a library, but a very special library. Not a collection of books that duplicated the shelves of almost any good public or medical library, but a library, carefully indexed, that held comparatively few books, but was rich in current reprints and extract material that had not been collected elsewhere. A Department of Hospital Service was organized to gather information in regard to the hospitals for mental disease in the country and to create a library of hospital plans, particularly of new constructions. A list of the public and private hospitals of the country was prepared; also a directory of the practicing psychiatrists and neurologists in each state and city, including an outline of their training. Methods were devised and forms prepared for the survey of state hospital systems and the general system by which states cared for their insane. At the request of governors, legislatures, and official boards, surveys were undertaken. Surveys in over thirty states have been made by the National Committee, most of these under Dr. Salmon's direction. In each survey recommendations were made looking toward the improvement of the care given to the insane, and in a more than gratifying number of instances these recommendations were carried out, or in large part carried out. A Department on Mental Deficiency was organized and a program devised for the identification, education and training, and, when necessary, proper segregation of the feeble-minded. The laws in the various states pertaining to the insane and the feeble-minded were compiled and published and an organization was created for collecting currently all new legislation upon these subjects. A Department of Uniform Statistics was created, and through the cooperation of the American Psychiatric Association a uniform nomenclature and a uniform method of statistical recording were adopted by hospitals for mental diseases throughout the country. For the purpose of studying the relation of mental disease and defect to delinquency, psychiatric clinics were established at Sing Sing Prison and the Juvenile Court of New York City and a psychiatric bureau at New York City police headquarters. This was not the first work that had been done in this field, previous work having been done

in Chicago by Healy and in Massachusetts by Stearns; but the work at Sing Sing was the first large study of its kind ever undertaken and from it has come much of the impetus that has carried forward similar studies since. In order that the layman might come to have a more intelligent and therefore more sympathetic understanding of the problems in the field of psychiatry, the quarterly journal, *Mental Hygiene*, was established.

These, of course, are not all of the activities that Dr. Salmon undertook as Medical Director of the National Committee, but they are sufficient to indicate the intellectual grasp he had of the problem he had before him and the large way he therefore went about organizing this new undertaking. As has been said, none of these things was spectacular, or designed to attract general public attention; each had importance in itself, but each was an integral unit in a whole; none gave large immediate returns, but each, as well as the whole, held potentialities for growth with increasing and sure effectiveness. Not many public movements are planned in this way. Other methods are usually preferred by young directors of new movements. Dr. Salmon's judgment in this matter was sound.

Two other major activities, probably the most important of his career, remain to be mentioned—his work during the war and the inception and carrying through of the plans for a psychiatric institute in connection with the new medical center at Columbia University. These, however, are so well known as to need here only briefly to be stated.

When one thinks of the general indifference to all psychiatric problems in 1917, it is little short of amazing what Dr. Salmon was able to accomplish. Not only was the general public uninformed, it was mostly misinformed in regard to the nature of war neuroses; the medical profession, largely as uninformed and misinformed as the lay public, held psychiatry in almost complete disregard—psychiatry was the Cinderella of medicine, as Dr. Salmon once phrased it—army officers were reared in a philosophy as alien as could be to the philosophy of conduct upon which the psychiatrist's work is based. What opportunity could there be for any work, let alone proper work, under such circumstances?

As is well known, Dr. Salmon was the Chief Consultant in Psychiatry in the American Expeditionary Force, and for his

services was awarded a distinguished service medal and was promoted to the rank of Brigadier-General in the Medical Officers' Reserve Corps. One can well believe that he was properly proud of these things, but one knows full well what this war service meant to Salmon—that more than 80,000 deemed unfit were not needlessly and dangerously exposed to war; that thousands of young men, for whom exposure was too great, to-day owe their health and effectiveness to timely treatment; that many hundreds, officers and men, found available the assistance they needed at a critical moment to make their war service effective; that thousands who, unfortunately, are not now and have not been since their service in good health, have been well cared for from the day they became ill; that the services of a well-trained psychiatrist are no longer disregarded, but are sought to an extent that for the moment is embarrassing because of the comparatively small number available; that psychiatric data and the psychiatric point of view have permeated not only an army, but a social structure and are producing a reconstruction in social thinking. This, one feels sure, is what the war service meant to Dr. Salmon.

The new psychiatry institute, an integral part of the new medical center at Columbia University, will now stand as the culmination of Dr. Salmon's work. Such a center had long been in his mind, a center in which the ablest men could work advantageously, where the highest standards of therapy could be maintained—one puts this first, for it was the patient that Salmon always had first in mind—clinical and laboratory research carried on, and personnel trained; and a center in proper mutual relationship to other medical specialties and laboratory sciences. Due in large part to his efforts, such a center is now in process of building, and psychiatry and medicine may look forward to an opportunity they have not had before, and the sick of the community to an increasing understanding of their difficulties and increasing ability to assist them.

Dr. Salmon would be the first to decline the credit for the success of these two undertakings, pointing to others who had a part in each. But those who had a part in either or both would be the first to say that it was Dr. Salmon's vision, inspiration, intelligent planning, and resourcefulness that made success possible. Many have had important work to do in each, but there is no question to whom credit belongs.

Dr. Salmon influenced the course of medicine and psychiatry in America. The qualities that made it possible for him to do this are, I believe, the qualities I named in the beginning—intelligence, imagination, and fine feeling, or a certain sensitiveness to life. He was an idealist, but he was not a visionary. He was a practical idealist, not in the sense that he would sell his ideals for a mess of pottage, for a cheap and temporary accomplishment, but because his ideals were practicable, frequently more practicable (economical and sensible)—as no one could demonstrate so well as he—than the unideal, so-called practicable, economical, business-like, and common-sense plans proposed in opposition to his. This type of idealist the world cannot well do without.

Dr. Salmon was drowned in August while sailing on Long Island Sound. There survive him his work, his wife, six sons and daughters, and men and women both within and without the medical profession who admired him, who were his friends and who followed confidently his leadership in mental hygiene and psychiatry. He gave much and generously to them all and they can only hope that he found in these associations, in his work and in life those things he needed to make living valuable to him.

FRANKWOOD E. WILLIAMS

THE NATIONAL COMMITTEE FOR MENTAL HYGIENE

Vita: Thomas William Salmon, born Lansingburg, New York, January 6, 1876; son Thomas H. (M.D.) and Annie E. (Frost) S.; M.D., Albany Medical College, 1899; married Helen Potter Ashley, of Lansingburg, Dec. 21, 1899; private practice and Willard (N. Y.) State Hospital, 1899–1903; commanding assistant surgeon U. S. Marine Hospital Service (now U. S. Public Health Service), October 29, 1903; passed assistant surgeon, 1908, resigned January 1, 1915; Chairman, New York State Board of Alienists, 1911; Director of Special Studies, The National Committee for Mental Hygiene, 1912–14; Medical Director, The National Committee for Mental Hygiene, 1915–21; staff, Rockefeller Foundation, 1915–21; Professor of Psychiatry, Columbia University, 1921–27; consulting psychiatrist, Presbyterian Hospital, 1922–27; Major, Lieutenant-Colonel and Colonel, M. C., U. S. A., 1917–19; Brigadier-General, M. R. C.; senior consultant in neuropsychiatry, A. E. F.; awarded Distinguished Service

Medal; editor, Neuropsychiatric Volume, A. E. F. Section (History), The Medical Department of the United States Army in the World War; member, Permanent Inter-Allied Commission for the After-Care of Disabled Soldiers; member, International Jury of Award, Panama-Pacific International Exposition; awarded Presentation Medal, National Institute of Social Sciences. Member, American Medical Association, American Institute of Criminal Law and Criminology, American Association for the Advancement of Science, New York Psychiatric Association (president), American Neurological Association, American Psychiatric Association (president), Association of Military Surgeons in the United States, Phi Sigma Kappa. Clubs: Century, Larchmont Yacht, Army and Navy (Washington, D. C.). Author of chapter on "Immigration," in *Modern Treatment of Mental and Nervous Diseases*, 1913; chapter on "Mental Hygiene," *American Year-Book*, 1917-20, and in *Preventive Medicine and Hygiene*, 1916-20, etc. Contributor on psychiatry and mental hygiene to magazines and scientific journals.

OBITUARY: DR. HENRY KOPLIK

Dr. Henry Koplik was born in New York City on October 2, 1859. He died in his 69th year on April 30, 1927, of myocardial insufficiency due to severe disease of the coronary arteries. At the time of his death there was no more distinguished pediatrician in America, nor one more widely known in the world.

His general education was obtained at the College of the City of New York, where he received the degree of A.B. in 1878. His medical studies were carried on at the College of Physicians and Surgeons (Columbia University), from which he was graduated in 1881. A short time after he completed his term of internship at Bellevue Hospital he left for Europe, where he spent one and one-half years in study in Berlin, Prague, and Vienna. Of all the distinguished teachers under whom he studied in these places the one who most influenced him was Professor Alois Epstein, who

was Director of the Foundling Institution of the German University in Prague.

In 1887 he was made Attending Physician to the Good Samaritan Dispensary. At that time the departments of pediatrics and gynecology in that institution were combined. This explains why one of Dr. Koplik's first papers dealt with the value of massage of the uterus and adnexa. During many years of his connection with the Dispensary he also did research work in bacteriology and pathology at the College of Physicians and Surgeons (in the laboratory of Delafield) and at the Carnegie Laboratory. As soon as he saved a little money he maintained in the Dispensary a laboratory devoted to bacteriology and clinical pathology. He rapidly made so extraordinary a reputation that physicians from as far away as San Francisco came to study with him. In fact his international standing was obtained on the basis of his work at the Good Samaritan Dispensary.

In 1889 he established there the first of the now so well-known milk depots (*gouttes de lait*). This was an accomplishment of outstanding importance and significance.

After serving for some years as Adjunct Visiting Physician to the Children's Ward at Mount Sinai Hospital, he worked there for twenty-five years as Attending Pediatrician, and then became Consulting Pediatrician. While connected with that institution he carried on some of his later clinical studies, and put into effect his ideas on ward hygiene.

For a time he was Attending Physician to St. John's Guild. He was also consultant to the Hebrew Orphan Asylum, the Hospital for Deformities and the Jewish Maternity Hospital.

Dr. Koplik was one of the founders of the American Pediatric Society, and at one time President. He was a member of the Association of American Physicians and an honorary member of medical societies in Vienna and Budapest. A source of great gratification to him was his appointment as a member of the Permanent Commission of the International Association of Child Welfare and *gouttes de lait*.

His medical activities were greatly varied. He was not only interested in the clinic but also in pathologic and bacteriologic studies. The fundamental subjects of hygiene and child welfare occupied much of his thought. As a clinician he was a sharp

observer and an accurate recorder of his investigations. His ability to pick up a new differential diagnostic feature of a condition was at times quite uncanny. In his work in bacteriology (which engrossed him more than pathology) he was original and painstaking.

The publications made by him extended over a period of thirty-six years, 1887–1923. Some of the main subjects that occupied his attention were the etiology of empyema, uro-genital blenorrea and the prevention of its spread in institutions, cerebrospinal meningitis (especially posterior basic meningitis), poliomyelitis (particularly cerebral involvement), diphtheria, sporadic cretinism, Mongolian idiocy, the prevention of the spread of respiratory and intestinal infections in wards, and the sterilization and pasteurization of milk. Other subjects to which he made contributions include streptococcus osteomyelitis, retropharyngeal abscess, pyloric spasm and congenital hypertrophic stenosis of the pylorus, chronic arthritis, pneumonia, typhoid fever and summer diarrheas.

Except for the subject of diphtheria no attempt will be made here to describe these contributions. The studies of diphtheria that were particularly important were those dealing with the cases of that disease which resemble catarrhal angina and lacunar tonsillitis. The recommendations of Dr. Koplik for the rapid bacteriological diagnosis of diphtheria are most valuable, as can be attested by the long experience of a number of observers, including the writer.

In 1897 he described a bacillus in pertussis which he had long before seen, and now had succeeded in cultivating. He stated that it resembled an organism described by Afanassjew. At that time differential immunologic methods were not available, and for that reason a strict comparison with the organism of Bordet-Gengou cannot now be drawn. The bacillus of Koplik seems, however, to conform to that of Bordet and Gengou.

In 1896 he published a paper entitled "The Diagnosis of the Invasion of Measles from a Study of the Buccal Mucous Membrane." This was followed in 1898 by a second paper on the same subject. The rapidity with which this method, so valuable from a diagnostic and epidemiologic standpoint, was accepted was remarkable. The full story of its speedy adoption will be given at

another time. While it was later pointed out that Flindt in Denmark, and Filatoff in Russia, had made observations similar to that of Dr. Koplik, the credit for its independent discovery and its popularization were freely given to him, and the sign at once named after him. The "Koplik Spots" made him justly famous the world over.

His book, "Diseases of Infancy and Childhood," appeared in 1902. It went through four editions, the last appearing in 1918. He dedicated it to his preceptors, Dr. Francis Delafield, the great clinician and pathologist, and Dr. Matthew D. Mann, who became the distinguished Professor of Obstetrics and Gynecology in the University of Buffalo, and who also came so prominently into the public eye because of his being called in to take care of President McKinley when he was shot. This volume of Dr. Koplik's contained large numbers of observations that he had not published in separate papers. Like all his publications the book is written in a careful, clear and concise way.

Personally Dr. Koplik was a man of distinguished appearance and dignified bearing. Whenever he discussed a presentation at a meeting, all eyes were at once turned to him, and all realized that they would hear a carefully-worded and authoritatively expressed statement based upon his own experience and his own views. In more intimate contacts one was impressed and attracted by his sparkling mind, his great knowledge and his goodly store of anecdotes and humorous stories. He was himself the kind of man concerning whom numerous anecdotes spring up. Some of these will no doubt be preserved.

It was many years before he developed practice and consulting work. His early career was a difficult one, but he had always the definite feeling that he would become a world figure in pediatrics. He was one of the first American practitioners to take up pathology and bacteriology, just as the celebrated Meltzer did extraordinary work in physiology while engaged in active family practice. Because of his interest in scientific pursuits, he early attracted the attention, admiration and support of such men as Adami, Jacobi, Osler and Welch. In the early part of his career he was very close to Jacobi. In fact, the latter entrusted to him much of the preparatory work for his classical monograph on diseases of the thymus.

It cannot be said that Dr. Koplik developed a school. He did, however, advise many men in their studies. A number of young physicians, including the writer, were inducted into the laboratory side of medicine by this remarkable man.

E. LIBMAN

DEATH NOTICES

EDWARD WALLACE LEE, M.D., 19 Center Street, Randolph, New York; graduated in medicine from the University of Michigan in 1882; elected a Fellow of the Academy, January 4, 1918; died, September 8, 1927. Dr. Lee was a Fellow of the American Medical Association and Consulting Surgeon to the Polyclinic and Broad Street Hospitals.

JACOB FUHS, M.D., 848 Prospect Place, Brooklyn, New York; graduated in medicine from the College of Physicians and Surgeons, New York City, in 1875; elected a Fellow of the Academy, April 5, 1888; died, September 18, 1927. Dr. Fuhs was a Fellow of the American Medical Association, a member of the Pathological Society, the Neurological Society, the Gastro-Enterological Society, and Consulting Physician to St. Mary's, Jamaica, Beth Deacon, Long Island College, Wyckoff Heights, St. Catherine's and the Jewish and Israel-Zion Hospitals.

EDWARD FLETCHER BRUSH, M.D., 320 South Fifth Avenue, Mount Vernon, N. Y.; graduated in medicine from Bellevue Hospital Medical College in 1875; elected a Fellow of the Academy, February 5, 1880; died, October 3, 1927.

FRANK SHERMAN MEARA, A.B., Ph.D., M.D., 400 West End Avenue, New York City; graduated in medicine from the College of Physicians and Surgeons, New York City, in 1895; elected a Fellow of the Academy, October 6, 1904; died, October 10, 1927. Dr. Meara was Professor of Clinical Medicine, Cornell University Medical College; a Fellow of the American Medical Association, and a member of the Society of Alumni of St. Luke's Hospital. He was Consulting Physician to the Bellevue, Lawrence, Bronxville, Mt. Vernon, Mountainside, Montclair and

Memorial, Morristown, St. Mary's, Orange, Dover and Overlook, and Summit Hospitals, and to the New York Infirmary for Women and Children.

WILLIAM ALEXANDER HUME, M.D., 63 Seasongood Road, Forest Hills, New York; graduated in medicine from the College of Physicians and Surgeons, Columbia University, in 1880; elected a Fellow of the Academy, June 7, 1888; died, October 19, 1927. Dr. Hume was a Fellow of the American Medical Association and a member of the Roosevelt Hospital Alumni Association.

JACOB TESCHNER, M.D., 134 East 61st Street, New York City; graduated in medicine from the College of Physicians and Surgeons, Columbia University, in 1880; elected a Fellow of the Academy, April 5, 1894; died, October 23, 1927. Dr. Teschner was a Fellow of the American Medical Association.

HERBERT SWIFT CARTER, A.B., A.M., M.D., 66 West 55th Street, New York City; graduated in medicine from the College of Physicians and Surgeons, Columbia University, in 1895; elected a Fellow of the Academy, March 16, 1905; died, October 25, 1927. Dr. Carter was a Fellow of the American Medical Association, and Consulting Physician to the Presbyterian, Lincoln and New York Skin & Cancer Hospitals.

HOLMES CONDICT JACKSON, Ph.B., Ph.D., 338 East 26th Street, New York City; graduated from Yale University in 1896 and 1899; elected an Associate Fellow of the Academy, January 6, 1910; died, October 25, 1927.

WILLIAM GILMAN THOMPSON, Ph.B., M.D., 17 East 61st Street, New York City; graduated in medicine from the College of Physicians and Surgeons, Columbia University, in 1881; elected a Fellow of the Academy, May 21, 1885; died, October 27, 1927. Dr. Thompson was a Fellow of the American Medical Association, a member of the American Physicians' Association, a member of the Alumni Association of New York Hospital, Presbyterian Hospital and Bellevue Hospital. He was also Consulting

Physician to the Bellevue, Woman's, Nassau, and the Lawrence and Reconstruction Hospitals.

SPECIAL NOTICE

Wanted—for publication—photographs of the following New York physicians of 1883:

Billington, C. E.	Livingston, Beverley
Bradley, E.	Monell, J. A.
Caldwell, R. A.	Pieree, H. T.
Chauveau, J. F.	Russel, C. P.
Chamberlain, W. M.	Saunders, Robert H.
Cooper, H. C.	Smith, Charles D.
	Wendt, Edmund C.

Please communicate with Dr. Linsly R. Williams, Director, The New York Academy of Medicine.

HOSACK BED FOR SICK AND NEEDY PHYSICIANS

Attention is directed to the following extract from the will of Mrs. Celine B. Hosack:

"I do give and bequeath unto my executors, hereinafter named, the sum of Ten Thousand Dollars, in trust, to apply and pay the same (or so much thereof as may be necessary) to The Roosevelt Hospital in the city of New York, to purchase a bed which, in memory of my husband, shall be known as the Hosack Bed, and which shall be occupied from time to time by such sick and needy physicians as may for that purpose be named or designated by the President and Treasurer for the time being of The New York Academy of Medicine."

DONATIONS TO THE LIBRARY FUNDS

Donations and bequests are solicited by The New York Academy of Medicine for the maintenance and expansion of the Library.

A donation or bequest of \$5,000 or more will provide for a special library fund, the income of which may be used for the general purposes of the Library or restricted to the purchase of books and periodicals, as the donor or testator may indicate.

FORM OF BEQUESTS

The following is a brief legal form as a suggestion under which bequests may be made in behalf of the Academy:

I give, devise and bequeath unto "The New York Academy of Medicine" of the City of New York, State of New York, a corporation duly incorporated by the legislature of the State of New York by an act, entitled "An Act to Incorporate The New York Academy of Medicine," passed June 23, 1851, and amended June 4, 1853, June 2, 1877, and April 24, 1925.

THE NEW YORK ACADEMY OF MEDICINE

VOL. III

DECEMBER, 1927

No. 12

INCIDENTS IN THE RECENT HISTORY OF THE NEW YORK ACADEMY OF MEDICINE

DAVID BRYSON DELAVAN

The completion and occupancy of the beautiful building of The New York Academy of Medicine and the organization of its activities under the new conditions arising therefrom has entailed an amount of thought and labor which only those intimately concerned can realize. To their unwearying energy and devotion must be accorded full recognition and the highest praise. The success of their work, visibly manifest and everywhere acclaimed, will be for them an enduring monument.

But as Imperial Rome was the product of long endeavor, so the present triumph of the Academy is a realization of the visions and the patiently continued efforts of those by whom the work of reconstruction long ago conceived was originally inspired.

While many of the incidents of the movement have already been published, some have not. That these should be disregarded would mean a loss of historical data interesting in themselves and important for the completion of the story. No further explanation, therefore, is needed for the presentation of the material herewith presented.

The activities which led to the present development of the Academy pertain to three periods, each one although separate and distinct in itself, essential to the final result. The first includes the decade beginning about 1910 at which time it had become evident that the then existing accommodations would soon be outgrown, and continues through the trying times of the War, under the presidency of Dr. Walter B. James.

The second, the period following the annual address of Dr. George David Stewart in 1921, when the new order was inspired and suggestions for its realization were definitely set forth.

The third period dates from the entrance of the two great Foundations upon the scene to the consummation of the long-continued and devoted efforts of those chiefly concerned. The record of its history has already been published.*

The years immediately preceding and including the presidency of Dr. William M. Polk were important by reason of the rapid growth of the institution. The necessities attendant thereupon had already received serious thought and had aroused activities which, at that time particularly stimulated by Dr. Polk and variously exerted by others, culminated in the accession to the presidency of Dr. George David Stewart.

In 1909, an important movement was started to secure means for the enlargement of the Academy and, under the leadership of Dr. Reginald H. Sayre and other spirited members, was continued until the sum of \$140,000 had been raised. This was known as the Academy Extension Fund.

The various attempts which followed these earlier efforts include the proposition of a new building at Seventh Avenue and 58th Street, abandoned for lack of sufficient means, and plans for alterations and additions to the existing building on 43rd Street.

In the years 1910-11 the properties 15 West 43rd Street and 10 West 44th Street adjacent to the Academy were purchased, and in October, 1910, a Committee on Plan and Scope, with Dr. Haven Emerson as Chairman, was appointed. In January, 1911, it is recorded that the work of this Committee and of the Committee on Finance was continued and that in March following, the Messrs. York and Sawyer, selected from a group of other prominent firms, were nominated and accepted as architects to prepare the preliminary plans for the proposed addition.

For a long while it had become increasingly apparent to the sponsors of the Academy that the unaided support of the medical profession could not be sufficient for its proper maintenance.

* *Vide* address delivered by Dr. Arthur B. Duel, Chairman of the Building Committee, at the Inaugural Exercises of the New Building. *Bulletin*, N. Y. Academy of Medicine, February, 1927.

Financial help from outside was imperative if the possibilities of the institution were to be realized. The sources of such assistance were not at that time evident, with one possible exception. For many years the Academy had virtually supplied the place of medical department to the New York Public Library. In view of this, and of the urgent needs of the Academy, it was decided to determine whether a reasonable share of financial support might not be expected from the Public Library. In 1910 an opportunity for testing the question arose through the death of Mr. John S. Kennedy, President of its Board of Trustees and its benefactor to the extent of a large bequest. In view of the dependence of the Public Library upon that of the Academy of Medicine, it seemed desirable to call the attention of the Trustees of the Public Library to the importance of the work being done by the Academy and to its need of funds. At the request of Dr. Polk the following letter addressed to him was prepared by the writer and was sent to a representative member of the Trustees of the Public Library, who at the same time had been the legal advisor of Mr. Kennedy:

“New York, July, 1910

“Dear Doctor Polk:

In view of the efforts now being made to secure funds from and through the medical profession for the expansion of the New York Academy of Medicine, I desire to call attention to the following facts:

“In addition to its already large foundation, the New York Public Library recently received by the will of the late John S. Kennedy, Esq., the sum of two million five hundred thousand dollars.

“The New York Public Library has no department of medicine. Dr. John S. Billings, Director of the Library, buys no medical books. On the other hand, he refers medical readers to the Library of The New York Academy of Medicine.

“The Library of the Academy of Medicine is freely open to the public, both medical and lay, irrespective of membership. As a matter of fact, it is extensively used by the lay public, including authors, journalists, lawyers, scientific readers, students of sanitation and of public hygiene, life insurance officers, architects, and investigators representing a wide variety of other non-

medical departments. Thus it covers a field of practical and indispensable usefulness to the public, not only through the profession of medicine, but in addition through an extensive range of outside interests. It is the only library of its kind in New York City. Of the great medical libraries of the world those of the Faculty of Medicine of Paris and of the Surgeon-General's Office of the United States alone surpass it, while the extensive and splendidly organized library of the Kings County Medical Society, in Brooklyn, is remote for New York City readers.

"The Library, however, forms but a part of the institution known as the Academy of Medicine of New York. This in fact has been so organized as to constitute one of the most powerful educational factors in the medical world. The general scope of its work may be learned in part from the published programs of its regular meetings.

"Well-established for many years, its success has proved the wisdom of its organizers and its example has been widely followed in other cities in this country and abroad. Within the last three years (1907) a similar institution has been started in London and has met with enthusiastic support.

"The Academy of Medicine is absolutely non-sectarian in every sense. It is not nor has it ever been allied to any other institution. It is open to the whole profession, is managed and patronized by the best men of the profession for the general good of all, is entirely independent of the influence of any circle or *clique*, and affords a general meeting place for every respectable physician irrespective of affiliation; an indispensable bulwark against charlatanry; the standard bearer of scientific progress and of public philanthropy.

"As an institution, it is worthy of the attention of any student of education. It is the fountain head of medical knowledge necessary to the welfare of every medical institution and of every individual. Its influence for good is incalculable. Already it has accomplished much. Properly equipped, it is capable of accomplishing vastly more.

port of the present financial standing is published in the annual report of the Treasurer. The funds for its establishment and maintenance have been collected with much difficulty through a long series of years, generally in small donations. Much has come

from the medical profession itself, very little from outside, although the institution exists in the broader sense for the distinct benefit of the public at large.

"From the terms of the Kennedy will it is evident that the bequest to the New York Public Library must of course go to that institution. The Library of the Academy is practically an integral part of the New York Public Library; at the same time it is, legally, an entirely independent institution. It therefore cannot claim a share in the Kennedy bequest or in any other similar to it. Its actual needs are great and are rapidly increasing. That they should not be met would be a public misfortune. Is it not possible when so much is being done for institutions of infinitely less value that the public at large should realize the importance to itself of this splendid guardian of its welfare and grant it the support necessary to its full and complete development?"

The answer to Dr. Delavan's communication confirmed the statement that the gift of Mr. Kennedy was left specifically for the Public Library, and therefore could not be used otherwise. The letter is as follows:

"New York, July 23, 1910

I read your note with regard to The New York Academy of Medicine with interest. I know generally of it. Its needs should be made more apparent evidently than they have been. If any opportunity occurs to me to serve its interest, I certainly will do so. Of course Mr. Kennedy's bequest must go entirely to the Public Library."

In the years which have elapsed since the above letter was received, nothing further has been heard on the subject.

During the period of the World War the conduct of the affairs of the Academy had been difficult. Large numbers, more than one-half, of its most active and efficient members were engaged in war services both abroad and at home; its resources were crippled, and the unusual obligations undertaken by it were engrossing. Notwithstanding a situation unprecedented in its history, with rare good fortune the leadership had fallen upon Dr. Walter B. James, whose clear judgment, commanding personality,

shall continue on in its present modest way or whether, the means being provided, it shall be enlarged and developed in a manner worthy of the dignity, the influence, and the usefulness of the representative medical institution of our great city.

“Buildings.—To fill the requirements of the situation, not only for the present but for the expansion which is sure to follow the growth of the Academy in the increasing number of its beneficiaries, the expansion of its present functions and the development of new fields of work, it is necessary that we should have space of such considerable extent as to make possible additions sufficient to meet increasing needs.

“Temporary expedients can only satisfy indifferently, and for a comparatively short period of time. Other institutions around us are growing with rapid strides. It is for us to remember that The New York Academy of Medicine is the representative medical institution of our country, as well as of our city, a city great in its scientific attainments, great in its resources, and supremely great in its generosity. The home of the Academy should be equal to the splendid possibilities of usefulness which it has already attained, as well as to those which lie before it; worthy of the high degree of dignity which it represents. The more general appreciation of its position and realization of its importance to the public welfare should surely win for it full and enduring support.”

Several recommendations relating to the details of the subject were set forth in the letter and these, elaborated and added to by others, were soon afterwards presented to large groups of Academy members.

The immediate result of this communication may be learned from the record of the minutes of the Trustees. “At a meeting of the Trustees held February 23rd, 1921, the President reported that he was still engaged in the matter of appointing a committee on the new building and wanted further advice from the Trustees in reference to this matter, particularly in view of the receipt by him of two letters, one from Dr. James, the other from Dr. Delavan.”

The letter of the latter represented an aspect of Academy expansion which appealed to the President and which he wished to communicate to the Trustees.

After the reading of these letters and much discussion thereon, it was voted, in view of the facts elicited and those of Dr. Delavan's letter, that the whole matter be referred to the Council for the purpose of getting its opinion, with the request that the Council make the question of a new building the chief topic of its consideration at its coming meeting on the evening of the same day, February 23rd.

At the above mentioned meeting of the Council the President stated that he had received a letter concerning endowment and expansion of the Academy which he had communicated to the Trustees. As the President had been requested by the Council to appoint a Committee to deal with this question, the Trustees desired the views of the Council with reference to the type of expansion which the Academy should consider and requested that the Council make this its chief topic of consideration at this meeting. The letter referred to above was then read for the information of the Council and each member present was asked to state his views thereon. After full discussion, it was resolved that the President at his discretion call a meeting of a group of members of the Academy, including the Council and Trustees, for the purpose of discussing this question.

In accordance with this recommendation of the Council, a dinner was given by the President of the Academy at the Lotus Club on the evening of March 21, 1921, at which were present about thirty representative members of the Academy to whom the propositions of Dr. Delavan were presented. Several upon hearing them were unconvinced, believing them to be "impractical," "hopelessly expensive," "a dream." To the objection that the proposition entailed expense far in excess of that hitherto required, it was answered that other institutions of the city of even less importance than the Academy were generously supported in the requirements of far larger outlay; that the Academy was the most important medical institution in the country's greatest metropolis, and that its wide and multiplex usefulness rendered it worthy of support commensurate with its value to the community and its indispensability to the problems of medicine, as well as with the dignity of the profession and the wealth and influence of the city of New York. Now, radical changes were needed. The endowment and expansion suggested might

well require a considerable sum, of which five million dollars was not an undue estimate, conservative when compared with the cost of other correspondingly great institutions. The time had come when the public, for whose benefit the Academy exists, should be enlightened as to its needs and confidently expected to respond to them.

A large majority were favorably impressed by the facts and arguments urged. A few weeks later, on April 26th, a second dinner was given by the President at the Lotus Club to another important group to whom the same presentation was made as that explained above. Several were present who had attended the previous dinner and who at first not favoring the plan had subsequently recognized its value.

The following letter to the President, earnestly expressive of the sentiments of its author toward the Academy, affords a fine revelation of the spirit of the man.

"April 26, 1921

"Dear George :

"I cannot tell you how sorry I am that I am unable to be present at your dinner tonight, for I am sure the future of the Academy will be discussed and I am sure, too, that you know how close the Academy and its welfare lie to my own heart.

"In relation to the question of Academy extension, may I say that I believe that before going on with the proposed building at 15 West 43rd Street another effort should be made to secure funds for putting up a new Academy on perhaps some other site and one which would be worthy of the dignity, and importance, and value of the institution, and which would better house its various activities.

"You will remember that three or four years ago we failed to secure the aid of one of the great Foundations. Since that time I believe these agencies have come to work more together and are more ready to cooperate to bring about worthy educational ends. Might it not be possible to show say, three of these, that the Academy is the seat and home of the higher medical education of Greater New York with its more than five million people, and that aid given to the Academy is aid given to one of the most important links in the educational system of the country? Should a short vigorous campaign now—say of two or three

weeks—fail to arouse an interest in our larger project, then I believe we ought to go on with the smaller one, trusting that the passing of twenty or twenty-five years will manifest here in New York a public endowed with greater vision or a profession with more power of presentation and persuasion.

“I believe that I have several arguments that have not yet been presented to these Foundations and that I think would have some force.

Sincerely yours,

WALTER B. JAMES”

At the Trustees’ meeting, held March 23, 1921, “the President reported on the subject of a building committee which had been left to him two months before. He deemed it wise that this committee should organize and begin work at once, so as to report to the Trustees at their next regular meeting. Two committees were appointed, one on Plan and Scope; the other on Building and Finance,” and the following letter was addressed by the President of the Academy to the writer:

“March 24, 1921

“At a meeting of the Trustees yesterday a Committee on Plan, Scope and Propaganda was formed, the functions of which Committee are to state plans for the future development of the Academy, and then to devise means of bringing this before the public and before the great foundations in the hope of raising money to carry out those plans.

“The Committee so far constituted consists of yourself as chairman, and Drs. Lewis F. Frissell, L. Emmett Holt, N. E. Brill, Walter B. James, S. S. Goldwater, Arthur B. Duel, Rufus Cole, Warren S. Stone, Frederic E. Sondern, Frederick T. Van Beuren, and Warren Coleman. Your committee has power to add to its own numbers.

“It is hoped that you will be able to formulate plans for the future development of the Academy and be ready to present them prior to the next meeting of the Trustees, which takes place on the fourth Wednesday of April.

“A second Committee was appointed whose function it is to consider carrying out our present plans and raising the money therefor. Should your Committee be able to report favorably

within a reasonable time, it would materially modify the action of the second committee. On the other hand, if your Committee reports unfavorably, then I think the second committee should become active. In other words, their action will depend something on yours. You will no doubt hear of this formally from the Secretary of the Board of Trustees, but because of your great interest in the matter I am writing to you personally."

The Committee on Building and Finance, appointed at the same time as the Committee on Plan and Scope, was as follows: Dr. L. Emmett Holt, chairman, Dr. Charles L. Dana, Dr. W. Gilman Thompson, Dr. Seth M. Milliken, Dr. Edward D. Fisher, Dr. Walter B. James, Dr. James B. Clemens, Dr. Alfred Meyer, Dr. Charles H. Peck, Dr. Royal S. Haynes.

At the meeting of the Council held April 27, 1921, the question of Academy expansion as hitherto proposed was further discussed. The consensus of opinion was that before taking any steps to carry out the plan under consideration, another effort should be made to institute the larger plan, namely, to buy a larger plot of ground elsewhere and erect a new building, and it was voted that the President be given full power to carry out the plans for the expansion of the Academy along the ideals outlined in the discussions.

Several meetings of the Committee on Plan and Scope were held before the summer vacation. In order to facilitate matters, the Chairman prepared a prospectus in which was set forth his own views as to the requirements and the possibilities of the Academy. A copy of this prospectus was sent to each member of the Committee for consideration during the summer. In the early autumn other meetings of the Committee were held, with the result that the propositions of the Chairman's prospectus were approved. Several of them have since been adopted. The rest we hope may be, in due course of time.

The original prospectus is as follows:

New York, June, 1921

To the President and Council of the

New York Academy of Medicine:

A series of suggestions relating to the proposed reorganization of the New York Academy of Medicine has been elaborated by

the Chairman of the Committee on Plan and Scope, and a copy presented to each member of the said committee as follows:

The accompanying outline is intended to present categorically the matters under advisement by our Committee on Plan and Scope of the Academy of Medicine. Many of the items are already familiar to you. Will you not study the various points, note upon the slips accompanying the memoranda any suggestions occurring to you, send these notes to me at your early convenience, and be prepared to attend a meeting of our Committee early in the fall.

Please consider especially questions relating: First, to the number, character, and capacity of the audience halls and rooms necessary to the uses of the Academy; secondly, to the scope of the activities of the Academy.

HALLS AND ROOMS

ROOMS FOR EXECUTIVE OFFICERS

(1) A special room, properly equipped, for the President of the Academy; his assistant; his stenographer.

(2) Suitable rooms and offices for the Librarian, and other officers, and their staffs; said rooms properly located and arranged for the convenient carrying on of the executive work.

READING ROOMS

General Reading Rooms:

For fellows of the Academy, for non-members, medical, and lay, and for medical students.

Private Rooms:

- (a) For the use of special investigators and their assistants. Should be of sufficient size to contain a desk, table, and stenographer's table, and a small locker for the safe-keeping of books and material in the absence of the user.
- (b) For special readers—a series of small rooms or alcoves for the use of readers requiring quietude and isolation—furnished with a small writing-table.

Reception Rooms, Council Rooms, Committee Rooms.

AUDIENCE HALLS

Main Audience Hall—its size and its location in building.

ROOMS AND AUDIENCE HALLS FOR SECTIONS

Rooms for Sections should in most cases be individual, each section having its own, furnished and equipped in accordance with its special needs and sentiments, and offering facilities for the permanent display of objects of historical and scientific interest pertaining to its department.

Since the stated meetings of Sections are held at definite intervals, and since a hall of considerable capacity is needed to accommodate the audiences attending such meetings,

- (a) Audience halls of ample size should be provided.
- (b) The use of these halls, in certain instances to be shared by several sections through proper adjustment of dates of Section meetings.
- (c) Adjacent to some of them should be rooms for the proper reception and examination of patients illustrative of subjects under discussion.

HALLS FOR MEDICAL MEETINGS (TEMPORARY)

Halls and meeting rooms available to outside medical societies, etc., of proper standing, should be provided, these being sufficiently desirable to attract medical and allied scientific associations of the higher order.

ROOMS FOR MEDICAL ORGANIZATIONS (PERMANENT)

To outside well-accredited medical organizations, certain floors of the building to be devoted to the housing of such organizations until needed for the Academy's own use.

DISPLAY ROOMS

For rare books relating to the history of medicine, portraits, pictures and illustrations of scientific or historic value, and charts, and for the proper storing and care of such collections.

EXHIBITION ROOMS

Suitable halls for public exhibitions—medical, surgical, sanitary, hygienic, food, etc.

FUNCTIONS

In addition to the activities already in operation, to which should be given every possible encouragement and support, several others should be established. There should be a Literary Bureau; a Stenographic Bureau; a Bureau of Publication; a Summer Register; a Safe Deposit Department; a Museum; a Bureau of Information relating to general medical activities; a Restaurant; a Committee of Reception and Social Entertainment; and the hours for readers should be lengthened.

The plan, as suggested by the chairman, would include the following items:

LIBRARY

The first and most important function of the Academy is that of a medical library. That of the Academy of Medicine represents one of the largest and most available collections of medical literature in the world. Wherever the value of books is most appreciated, there is furnished for them a worthy repository. The libraries of great cities and universities are among the most imposing of their public monuments. Designed for utility rather than for display, the building of The New York Academy of Medicine should be worthy of the dignity of the institution; adequate to its present and prospective needs; perfectly designed and constructed; equipped with thoroughness of detail and perfection of device; a model to the world for the future as it has been in the past.

MUSEUM

The interest shown in museums in general is attested by the character of those interested in their development and management, by the vast sums devoted to their support and by the ever increasing patronage of the public. The medical museums of Europe have been famous through many generations. The museum of the United States Army in Washington is a treasure-house of information. Aside from it there are few in this country worthy of the name and none in New York. In this great metropolis no single institution could assemble and maintain such a museum as might be created by the Academy of Medi-

eine, which represents all. It would be invaluable as a means of information and instruction to a wide circle of inquirers, as is the Library. Thus it would serve most usefully the welfare of the public throughout the world.

The main interest of the museum should be historical. Already the Academy is rich not alone in its library. From the beginning it became the repository of objects in large number and variety pertaining to the history of medicine, both in general and as relating to New York. These things, consisting of portraits of distinguished members of the profession, pictures, engravings, documents, surgical instruments, original models of instruments, etc., have increased in volume and in value until they have become an important feature of the institution, next to the library its most interesting and valuable possession. They form indeed a highly instructive museum of medical history, acquired during half a century through the efforts and liberality of men of discriminating foresight. This feature of the Academy must on no account be slighted, still less given over to neglect. Aside from the intrinsic worth of our collections their importance for the instruction and inspiration of ourselves and of generations to come is inestimable. From every point of view, whether of practicality or of sentiment, they are priceless, irreplaceable treasures.

Moreover there should be departments Anatomical, Physiological, Pathological, Histological, Bacteriological, Botanical, Educa-

ROOMS FOR MEDICAL objects already mentioned, the historical

To outside well-accommodate a wide variety of articles pertaining of the building to be designed, with special reference to those as soon as needed for the Academy in the United States, presenting representative instruments and appliances; also, development of instruments; medical and

For rare books and methods as found among ancient and primitive pictures and illustrations and medals relating to medicine.

charts, and for the proper paraphernalia useful in the illustration of the different groups to serve as models for medical instructors in general, so that an

Suitable halls for practical school could gain definite and reliable tary, hygienic, food, etc

information as to the best illustrative apparatus for his department.

Under proper expansion of this department the publication of series of illustrative charts, etc., for lecturers could be undertaken.

A museum originated in the Academy of Medicine could be developed until too extensive to be contained therein, in which event it could be used as the nucleus of a great independent organization, having its own building, thus releasing the space occupied by it to the academy's growing needs.

STENOGRAPHIC DEPARTMENT

There should be a department under a competent head for the supplying of trained medical stenographers, reporters, typists, illustrators and photographers, through the medium of which the most reliable and skillful service could be promptly obtained.

LITERARY

Heretofore at the Academy, the services of reliable medical bibliographers and translators have been difficult to obtain. Also, without supervision and with no responsibility to any definite head, they have often been tardy in the execution of work and without restraint in charging for it. This department would be definitely organized, with a responsible director who should supply efficient operatives and have general supervision of the work, to the end that the latter be executed and delivered in good form and without undue delay and that the charges should be correct.*

PUBLICATION

The Academy should maintain a bureau of publication, for the editing and publishing of its transactions, reports and such other matters as may pertain to its activities. Through this bureau, printing and publishing facilities should be made available to other medical bodies and to individuals, and encouragement, including financial support, given to the bringing out of medical

* Since the above was first presented the idea has been carried out in the admirably organized "Department of Literary Research" of the American College of Surgeons.

works of unusual merit or scientific importance. Such a department is well illustrated in the organization and conduct of the Yale University Press, an institution properly endowed and entirely independent as to management and to financial support but under the control of the University. Its value has long since been demonstrated in the high character of the books it has sponsored, the beauty of its press work and the acknowledged dignity of its position in the world of literature. A department in the Academy of Medicine based on somewhat similar principles should become as important in the field of medicine as have its prototypes in the greatest of the universities of England and the United States. It is earnestly recommended that steps be taken by the Academy to be the first to initiate the organization of such a department and to zealously further its progress, not only for the advancement of medical knowledge, but also as a valuable example to other great medical institutions.

SAFE DEPOSIT DEPARTMENT

The Academy should provide a department for the safe-keeping of its own valuables and those of others who might be accorded its use. This department should be equipped after the manner of the usual fire-proof safe deposit vault. In it could be kept the archives of the Academy; rare manuscripts and other treasures calling for special protection; secretary's reports of the various sections of the Academy; secretary's reports of accredited medical societies; and memorabilia of private ownership, of possible future interest to the Academy.

From the placing of society archives and transactions in the hands of officers filling more or less temporary appointments it has frequently resulted that the papers have been scattered, mislaid or even entirely lost, sometimes from carelessness, more than once through the death of the one holding them. The members of the society have had no knowledge of their whereabouts, nor the family of the deceased of their importance. It should be understood that such material when not in use would always be found in its safe deposit compartment. Thus, in case of accident to the secretary, the officers of the society could at once recover their papers intact. The plan relieves the secretary of the burden of transporting the records to and from his residence as well

as of the responsibility of their keeping, while it insures their absolute preservation in a definite place.

Mechanical difficulties in respect to the storage of books and papers, such as the effects of changes of temperature, dampness, etc., doubtless could be overcome. The expenses of the management would be defrayed by the rentals of the boxes.

MEDICAL EDUCATION

Much could be done by such an institution as the Academy in the way of supplementing medical courses, especially for graduates in medicine. Topics could be treated which might not be in line with regular systematic courses, distinguished men presenting them. These lectures, free to all, might be made attractive and highly instructive to a great variety of medical men, although they should not be allowed to conflict with the basic object of the Academy, namely, the Library.

PROVISION FOR MEDICAL STUDENTS

New York City has become a great center of medical education, both under-graduate and graduate. Medical books are expensive; the average medical student is not wealthy, while board and fees are costly.

The Academy would increase its usefulness by furnishing a reading room or rooms for students, and supplying the necessary books in return for a nominal fee. This would relieve the student from a heavy burden of expense and—a matter of supreme importance—demonstrate to him the meaning and the value of a fine library, and fix upon him “the reading habit” early in his career.

A CENTER OF MEDICAL ACTIVITIES

There should be a Bureau of Information based upon the principle of the “Bulletin of Weekly Clinics,” but giving in addition definite information as to all medical activities of the city in general. With the growth of medical education this department would become progressively more useful and should receive substantial encouragement.

In other buildings, near the Academy, dealers should be encouraged to locate who would furnish all medical necessities and

conveniences as, for example, book-sellers, instrument-makers, surgical and sanitary appliances, a thoroughly equipped pharmaceutical establishment, and every other legitimate thing pertaining to the life and work of the physician.

SOCIAL

Special provision should be made for the reception and entertainment of distinguished visitors and guests, and proper funds and facilities furnished for this and for the purposes in general of the furtherance of friendly relations with deserving representatives of our own country and from abroad.

DISTRIBUTION OF BOOKS

1. In the future, branches might be established, as with the New York Public Library.

2. Distributing stations in outlying districts, at which books from headquarters can regularly be delivered by carrier to be called for by those having ordered them, and by them returned to the station when used and thence restored to case. Such stations might supply journal rooms of limited scope.

PHILANTHROPIC ACTIVITIES

The Public Health Committee of the Academy, which contributes its important share to the welfare of the country, is but one of the institution's philanthropic activities. Others of more or less allied character, such as the Child's Welfare Committee, are in active operation, while the future is certain to develop more.

SUMMER REGISTER

With the coming of vacation time many consultants leave the city, some for the season, others for a few weeks at a time. Heretofore it has been difficult to learn who are in town and who are away. To all, and especially to those at a distance desiring prompt aid, the task of securing it has often been attended with difficulty, expense and serious delay. Office after office has been called by long distance telephone or telegraph without success; or some overworked friend in town importuned to perform the same service. There are few occasions during the summer when excellent consultants cannot be obtained, if only their presence in town were known.

A simple solution to this difficulty would be to establish at the Academy a bureau at which those who for any length of time expect to be in town and subject to call could register their names and the dates between which they could be found. By communicating directly with the bureau the applicant could at once learn of all available in any given specialty, make his own selection and through the bureau be placed in direct communication for the purpose of final arrangement. Such a bureau or department could be conducted with little expense or trouble, to the great convenience of all directly concerned, both applicants and physicians.

RESTAURANT AND ENTERTAINMENTS

Provision should be made for special entertainments by outside caterers. For this purpose proper space and equipment should be provided.

There should be a buffet, offering simple but adequate service for the personnel and for accredited visitors to the Academy, at least for supplying meals during the midday hour, at a minimum charge, as is done in the National Library of Paris, and elsewhere.

It is imperative that additional space and improved facilities be provided, not only for the growing needs of the functions already established, but that the future welfare of other interests not now in existence be foreseen and provided for.

BUILDING

The building of the Academy

- (1) Should be most centrally located.
- (2) Fireproof, of the first order of modern construction.
- (3) Foundations and substructure strong enough to sustain heavy additional superstructure, for space to meet requirements of future growth.
- (4) Perfectly ventilated and lighted, the latter where possible by the indirect method.
- (5) There should be provision for the parking of cars.

With relation to the outside world, the work of the Academy has been carried on with such dignified modesty that its useful-

ness to the general public is all too little understood. Many institutions of less merit and of far less public importance have been generously endowed. Unless we are to fall behind, the time has come when this matter of endowment and expansion should be seriously considered and discussed. Independence of action is necessary. Suggestions may be gained from various sources, but in the main we shall have to use our own initiative and evolve our own plans.

The TIME for building is not as important as is the formulation of a general plan, comprehensive, far-reaching, and adequate. We can well afford to postpone definite action for a short period in view of the importance of a wise decision.

The reception by the members of the Committee on Plan and Scope of the list of recommendations as above set forth, made by the Chairman, was favorable. Few additional suggestions were offered. Of these the most notable was presented by Dr. Warren Coleman, who urged the importance to the Academy of an official publication or Bulletin, in which should be set forth the current activities of the institution.

The following letter to the Chairman is worthy of record:

"July 27, 1921

"I have yours of the 22d, together with your interesting compendium of questions. I have already gone over them and will further consider them and try to be of any service in the autumn. It is a most helpful and suggestive list and will be very useful.

WALTER B. JAMES"

With the resumption of activities in the autumn, affairs were seriously discussed and at a meeting of the Council held November 3, 1921, it was the consensus of opinion that there should be a definite plan developed for the proposed building, that this plan must be worked out with deliberation and care, and that it should be determined upon at a comparatively early date. As to the question of a museum, it was agreed that there should be a museum, limited in its scope to objects of historic or unusual scientific interest, these not to include so-called wet pathological specimens.

The progress of events is sketched in the following brief summary taken from the Records of the Academy:

On October 25, 1922, the President was given authority by the Council to appoint a Committee on Functions of the Academy, with sub-committees on Education, etc., and the following were appointed: Dr. Samuel A. Brown, Chairman, and Drs. Walter L. Niles, William Darraeh, Rufus I. Cole, Geo. Gray Ward, James Alexander Miller, Charles L. Dana, D. Bryson Delavan and Karl M. Vogel; also a Committee on Site and Construction, and a Committee on Progress, to function in cooperation with the President.

January 24, 1923, the President announced the appointment of a Committee on Site and Construction, as authorized at the October meeting, as follows: Hon. Frank L. Polk, Chairman, and Drs. Walter B. James, William Gilman Thompson, Arthur B. Duel and Bernard Saehs.

March 28, 1923, the names of the Building Committee were announced, as authorized at the previous meeting by the Council, and were ordered on record as follows: Dr. Arthur B. Duel, Chairman, and Drs. Goldwater, Burlingame, Holt, Niles, van Beuren, Wright, Keyes, Delavan, James, Tilney, Haynes, Milliken, Thompson, Dana, Sondern, Farr, Riley, Clark, Dougherty, Anderton, Humphries, Bechet, St. Lawrence, Alger, Rathbun, Caldwell, Forbes, Clemens, and the President, ex-officio.

During the early part of 1923 an active campaign was carried on for securing funds for a new site and increased endowment. A committee consisting of sixty members of the Academy was created by the President and placed under the able chairmanship of Dr. Royal S. Haynes. This committee carried out its work with great enthusiasm and through its efforts over \$200,000 was subscribed by 1,313 Fellows of the Academy, to which was added about \$325,000 from gifts of various of their friends, aggregating over \$500,000. This amount, with the equity of the 43rd Street property, was sufficient for the purchase of a lot at the corner of 60th Street and Park Avenue, for which \$754,000 was paid. After much careful study it was found that this site presented several objections, so serious that in 1924 it was determined to relinquish it, and the plot was advantageously sold for \$1,000,000, immediately following which the present site was determined upon and purchased for the sum of \$225,000, together with an adjacent lot on 103rd Street for \$17,500.

The question of location had been attended with many difficulties. The character of 43rd Street had completely changed. The street had become crowded and noisy, access to it was difficult and parking was impracticable. Entire reconstruction of the buildings would require several years, necessitating meanwhile the temporary transference and disuse of the library. It became evident that a new location must be sought. After long-continued and diligent search the 60th Street plot had seemed suitable. In elaborating the architectural plans, however, it was demonstrated that the space was inadequate to the inevitable expansion of the stack room. A sale of this property, fortunately highly advantageous, was therefore effected, and the new location secured. To any who may have been disappointed, it will be some compensation to know that the 60th Street corner is one of the noisiest in the city, having the subway and the crowded traffic from the Queensboro Bridge on the north, the New York Central and the New Haven railroads, together with the traffic of Park Avenue on the east, and the disturbances of the trolley lines and the traffic of the 59th Street thoroughfare and of Madison Avenue on the south and west. Moreover, the geology of this block front is peculiar. The lake at the southern extremity of Central Park finds its outlet to the East River underground. When the adjacent half of the block extending to 59th Street was recently excavated in the process of the erection of a heavy building, these subterranean streams presented unexpected difficulties which cost the loss of many months of valuable time and the expenditure of a large amount of capital before being overcome, in fact resulting in the bankruptcy of no less than two contracting firms. While the conditions at the 60th Street corner were not quite as serious, the expense of securing stable foundations was excessive.

The final choice of the present site of the Academy was based upon wise prevision which is already recognized and which time will abundantly confirm.

In the meantime, while these efforts toward endowment and location were being carried on, the portentous question of funds for the new building, so long a problem, was still in abeyance. The president, with other zealous associates, although working with indefatigable effort to secure the aid of various friends of

large private means, had not succeeded in so doing excepting in the case of several whose very liberal contributions were nevertheless insufficient to meet the necessary amount. It having been demonstrated that further effort in the direction of private support would be likely to incur discouraging delay it was determined to appeal to the leading foundations. A letter was prepared by Dr. Stewart and placed before them.

“January 23, 1922.

“To the Trustees of

The Rockefeller Foundation

The General Education Board

The Carnegie Corporation

“Gentlemen:

“The New York Academy of Medicine, founded some seventy-years ago, now occupies a building which it owns on Forty-third Street, just west of the Century Club. In this building, which is five stories high, is housed its library of approximately 130,000 volumes, and in it are conducted all of its activities.

“It is the purpose of this memorandum to bring to your attention, not so much the present work and the immediate activities of the Academy of Medicine, but rather to make clear that the position which it now holds—creditable as it is, and the work which it is now doing, valuable as it is—represents but a small part of what it can accomplish if it can be housed in such a building and provided with such resources as to enable it to render to the profession and to the community the service of which it would be capable. We beg, therefore, to lay before you in the first place a brief statement of the place which The New York Academy of Medicine aspires to fill.

“It is perhaps not too much to say that the progress of the medical profession will in the main be effected through the men of the profession and in a large measure through the organizations which they set up for this purpose. It has been the weakness of many medical associations that they represent a local and often too exclusively a practitioner’s view. Local medical societies, fruitful as they have been in stimulating the interest of the medical profession and in discussing questions of public health,

have nevertheless remained to a certain extent partisan, representing in many cases a single group of physicians and surgeons, and dealing with medicine mainly from their point of view.

“In comparison with this situation, an Academy of Medicine, organized as that of New York, embraces all groups of medical practitioners. It represents no particular professional interest. It unites, as does no other agency, the best thinking and the highest aspirations of the medical body.

“The work of the Academy naturally centers about its great library. Except the Medical Library of the Army Medical Museum in Washington, no other collection of medical literature in this country approaches the library of the New York Academy of Medicine. It contains not only the most complete collection of books relating to the history and to the practice of medicine, but likewise the best collection of medical journals and pamphlets. This library is made as accessible to the profession, not only of the City but of the country, as the crowded conditions of the present building will allow. Unfortunately, the building is not fire-proof and the medical library which it houses and which could never be replaced, may at any time be destroyed. Such an untoward event to a large extent would wreck the usefulness of the Academy, limit the possibilities of its service for the future and seriously restrict the activities of the entire medical profession of the city.

“Centering about the library as its nucleus, the Academy maintains continuous activities of a wide range and of diverse nature. Its public meetings and lectures give to the profession in New York the opportunity to hear the most distinguished men in medicine and surgery. In its sectional meetings, special questions of a particular branch of medicine or of a definite problem are illustrated and discussed for the information of those who are eager and willing to keep abreast of the medical knowledge of their day. Through these two means the Academy renders an enormous service in continuing the education of post-graduate students. Perhaps no other single agency touches more men desirous of study or offers them a more practical way of accomplishing this desire than The New York Academy of Medicine through its public and sectional meetings.

"Outside of these two agencies the Academy has conducted a Division of Public Health which has been in close contact with the health officials of the City and has served, not only to keep members of the profession in touch with public health problems, but has proved useful also in introducing to public health authorities the men able to advise and aid them.

"The Academy contemplates, as a part of its work, not only the immediate and direct service rendered through its library, its public meetings, its sectional activities, and its public health program, but it also endeavors to make itself a centre of professional information for the great number of men who resort to New York for medical training or for information as to where training can be had. It desires to make this a centre of information available for international purposes to the large number of foreign physicians and students who come to New York.

"The Academy,—if its building and its resources permitted,—would gladly extend a medical hospitality to individual physicians or to visiting medical societies that wish to hold sessions in New York City.

"In a word, the function of an academy of medicine in the city of New York contemplates not simply the facilities of a great library and the stimulation to the profession arising from interesting lectures and from fruitful sectional meetings, but it aspires to become an effective centre in the greatest city of the new world for those activities of medical men and of medical associations which are not now able to find in any one place either the information necessary for their right conduct nor yet the sort of welcome which the medical science of one continent should extend to the medical representatives of every other continent. New York City itself makes possible a medical centre, conducted by members of the profession itself, such as is possible in no other city of the new world and perhaps not in any city of the old. Not only is New York a city to which the medical men of North America constantly resort, but it is also the great port by which enter the physicians visiting us, whether they come from Europe, Asia, or South America. It is possible to establish in New York, therefore, through the Academy of Medicine, a centre that shall serve, not only the professional needs of those who teach and practice medicine in the City, but which shall also

serve as a clearing house for medical information, as an exponent of the relation between the medical profession and the public, and as a dispenser of that hospitality alike to the medical men of Buenos Aires, of Tokio, of London, or of Paris, the welcome of a city and of a nation; and which offers to them in one place such information as will enable them to find those opportunities which they seek. The function of an academy of medicine in the City of New York is, therefore, something far greater than the admirable work which the present Academy of Medicine is now carrying out.

“The financial situation of the Academy is set forth in a memorandum to be presented later. That memorandum shows that in addition to its valuable library and the small endowment raised through the efforts of medical men themselves, its chief asset is the building which it now occupies at 17 West Forty-third Street. It would be impossible to convert this into a fire-proof structure and quite impossible to enlarge it so as to accommodate an institution whose function is conceived in the terms of the preceding paragraph. Such a building should contain not only rooms for the library, for the general meetings of the Academy, for sectional meetings, for the Bureau of Public Health, and for professional information, but it must contain also facilities for professional associations and other medical organizations, for committee rooms, and for administrative offices.

“The property which the Academy owns is estimated to be worth some \$450,000. An enquiry which has been made in the region between Forty-second Street and Fifty-ninth Street and between Fifth Avenue and Seventh Avenue indicates that a building site could be found within this area accessible and well-adapted to the needs of the Academy. Such a site would need to be not less than one hundred by one hundred and twenty feet. The sale of the present building of the Academy would provide a sum of money approximately sufficient to purchase such a plot. Tentative plans have been worked out as to the character and cost of a building necessary to house the library of the Academy and afford room for the activities which have been enumerated. The building should not be less than eight stories high. It should be fire-proof and should be so constructed that twenty-five years

from now additional stories could be added, if necessary. According to the sketches and estimates made by a reputable firm of architects it appears that such a building can be erected for about one and a quarter million dollars. These sketches can be seen at the office of the Academy of Medicine, 17 W. 43rd Street. This estimate seems as accurate as is prudent to submit until some definite assurance of the support necessary to carry out the plan just outlined can be obtained. A building erected under these conditions would not only house the library in fire-proof quarters, but would also furnish the requisite room for the students who use the library and who are now subjected to such crowding and inconvenience by reason of the lack of room as to greatly limit the use of the books by those who are engaged in research or serious study. It is believed, therefore, by the representatives of the Academy who have given this question thought that the sum mentioned, when added to that which could be realized from the sale of the present property, will effectively house the Academy of Medicine and make it possible for it to develop such a centre of medical influence and of medical co-operation as has been outlined in the preceding statement.

"In order that this program may be made possible it is, however, necessary that a certain endowment should be available for the specific purposes of the library, of the regional, national, and international bureau of information, and for offering to visiting medical men, whether from our own country or abroad, the facilities of a central agency of medicine. The annual payments of physicians and the gifts which are constantly made by medical men will be needed always to support the regular activities of the Academy. It is quite fitting and desirable that the medical profession should make this contribution, although beyond their power to furnish a great building or the funds for the support of a national and international centre.

"In view of the situation which has been briefly described in the preceding pages, the officers of the Academy of Medicine have the honor to earnestly request that the three great foundations to whom this appeal is made, and who have fostered more than any other endowed agencies the progress of medical education and of medical progress, will take under consideration the plan of devoting the sum of three million dollars, one million

from each foundation, to a fund which shall suffice to erect a building and provide an endowment for an international medical centre in the city of New York, to be conducted by the members of the medical profession itself through The New York Academy of Medicine. It is the belief of those in this academy who speak for the profession that no money which can be devoted to medical progress or to the betterment of medical education would do more to stimulate those agencies which bear most directly on the improvement of the practitioner in medicine after graduation from the medical school.

“It remains true that through the various activities of the Academy more practitioners of medicine are quickened and encouraged to a better understanding of their profession, to a more scholarly effort in the understanding of its problems, and to a more catholic spirit in dealing with other men in their profession, than is brought about through any other agency. In many ways an academy of medicine serves as an instructor of post-graduate medical men and it is the belief of those who present this appeal to the three foundations that the time has now come when their efforts to better medicine and to promote medical education may fittingly take the form of helping medical organizations themselves to render those services to the profession which can only come through medical organizations. We earnestly hope that this request, representing a mature conviction of the medical men in this vicinity as well as in some sense the medical men of the United States, may receive at your hands a most earnest and friendly consideration.

Respectfully submitted,

Geo. David Stewart,
Edward L. Keyes,
Walter B. James,
W. Gilman Thompson,
Charles L. Dana,
Seth M. Milliken,
D. Bryson Delavan,
Walter L. Niles,

Rufus I. Cole,
Arthur B. Duel,
L. Emmett Holt,
Nathan E. Brill,
Hermann M. Biggs,
Graham Lusk,
Samuel A. Brown,
William H. Park.”

The letter of Dr. Stewart signaled the beginning of the third and final period of our story. Through the influence of the

Chairman of the Building Committee of the Academy it was brought to the attention of the Carnegie Corporation which, in 1922, voted a grant of one million dollars, afterwards increased by the sum of \$550,000. With the new building thus made possible and with the generous support of the Rockefeller Foundation in the development and furtherance of the various educational facilities of the institution the immediate future of the Academy was assured and its further prospects rendered brilliant.

Prompt and courageous action already having secured a desirable location, the architects so long associated with the interests of the Academy were again retained, their plans accepted and the serious work of construction begun.

The By-laws which then existed placed the burden of administration on the president and the coordination of the Academy activities on the recording secretary.

The volume of work under the new conditions had assumed proportions far too great to be met by the unaided efforts of the already overtaxed officers of the Academy.

In recognition of this a new precedent was established in the creation of the office of "Director," the intention being to place the executive work in the hands of a competent leader who, under the supervision of the Council, should devote his time and energy to the general coordination of the activities of the institution and to the development of its various interests, especially such as were educational. On January 1, 1924, an appointment to this position was made.

Dr. Stewart, having accomplished the completion of the work preliminary to the actual construction of the new building, retired from the presidency in 1924, but by no means relinquished active participation in the Academy's affairs. The six years which marked his incumbency had been among the most important of the Academy's history, for during that time the idea of the expansion of the institution was promulgated in definite terms, the means for its fulfillment were secured and, the way having thus been made clear, the final execution of the work was begun.

He was succeeded by Dr. Samuel A. Brown, who assumed office in time to lend efficient aid in the numerous and exacting activities which attended the construction, equipment and organization of the new building. Dr. Brown presided at the laying of the cornerstone of the Academy, on October 30, 1925, and at the dinner given November 17, 1926, in honor of the twenty-two newly-elected Honorary Fellows of the Academy, thirteen of whom were from abroad. On this occasion, at which more than one thousand representative physicians were present, addresses were made by Dr. Harvey W. Cushing, of Boston, Dr. George E. de Schweinitz, of Philadelphia, Dr. William Sidney Thayer, of Baltimore, and by the Mayor of the City of New York, Dr. George David Stewart acting as toastmaster. Dr. Brown also presided at the exercises attending the dedication of the new building, on November 18, 1926.

Thus, from what has been presented herewith, we have seen that, following the patient efforts of many earnest men, through doubt, uncertainty and often disheartening delay, the time for effective action at last was recognized, with the result that the vision of seven years ago is the living reality of to-day.

We are proud of our precious new gift, unrivaled as it is among others of its kind, rich in the possibilities of its usefulness; and we are deeply grateful for the devoted self-sacrifice and the generous liberality which have so happily realized the dream.

But while admiring the structure in all its varied excellence and beauty let it be remembered that the building is but the treasure-house which contains that expression of our highest and noblest ideals,—the body, the life and the spirit of The New York Academy of Medicine.

COLONIAL MEDICINE, OR THE DOCTOR OF OUR FOREFATHERS

THOMAS J. HARRIS

(Delivered before the Section of Historical and Cultural Medicine,
October 31, 1927.)

At the opening of the seventeenth century, Europe was only beginning to emerge from the darkness of the Middle Ages. Medicine had changed little since the days of Galen. It was still an art and not a science. Indeed it has been said that at the great Universities of Oxford and Cambridge, medicine at that period was not even a farce. The University of Edinburgh did not grant the degree of doctor of medicine until well on in the eighteenth century. We can form some idea of the doctor of the Colonies by a brief glance at his European contemporary. Dr. Francke H. Bosworth in his "Doctor in Old New York" (1) has written delightfully of this period. We quote from him as follows:

"The most prominent medical man of London was Sir Theodore Mayerne, physician to Henry IV and Louis XIII of France, and James I and Charles I of England. He was probably the most eminent physician of his time in Europe, and was a somewhat extensive writer on medical topics. With a shrewdness which has found many imitators, even in our own time among fashionable physicians, he made a specialty of the treatment of gout. Dr. Mayerne, however, recommended a most clumsy and inordinate administration of violent drugs. Calomel and sugar of lead, as well as pulverized human bones, were among his favorite remedies. The principal ingredient in his famous gout-powder was raspings of a human skull unburied. But his sweetest compound, as Jeaffreson tells us, was his Balsam of Bats, strongly recommended as an unguent for hypochondriacal persons, into which entered adders, bats, sucking whelps, earthworms, and the marrow of the thighbone of an ox.

"Another distinguished doctor of this period was Sir Thomas Brown, the erudite and famous author of *Religio Medici*. An-

other was the 'eccentric, gallant, brave, credulous, persevering, frivolous' Sir Kenelm Digby, courtier, cook, lover, warrior, political intriguer, and finally doctor. By means of his famous sympathetic powder some of the most marvellous cures in the history of medicine were accomplished. Curiously enough, the composition of this powder was revealed after the Doctor's death, by his chemist, and consisted merely of sulphate of lime which was obtained by a rather unusual but unnecessarily complicated process. Among others of this time were William Harvey who, unlike those we have mentioned, left to the world a bequest of incalculable value in his great discovery of the circulation of the blood; and Sydenham, one of the first to make available to his own and subsequent generations the value of intelligent clinical observation."

The leaders of the profession in London were distinguished for their literary ability. A delightful account of a half-dozen of these is found in a book printed many years ago called the "Goldheaded Cane" (2). The goldheaded cane was the emblem of authority of the doctor of those days, and this particular cane was carried by a number of them in succession and now reposes in the library of the Royal College of Physicians in London. One of the most eminent men mentioned in it was Dr. Richard Meade, who lived toward the end of the century and who is said to have had the finest art collection and the largest private library in London.

For a long time after the days of Galen, medicine was largely in the hands of the priests. "The doctor of the 17th century in England and the Continent wore a long black gown and skull cap, a modification of the robe of his priestly predecessor. He wore a wig which was adorned with either two or three tails and was so elaborately dressed that he often went bareheaded through the streets of London lest it should become disordered. His silk coat and stockings and his silver buckles seemed to have been essential parts of his dress, and even a muff, to preserve the softness and delicacy of the hands, was carried by many. Up to the days of Charles II he made his visits on horseback, riding sideways after the fashion of women, but after that time he rode in his coach, drawn by two, and sometimes four and even six

horses." "His 'armamentarium' consisted of certain simple compounds together with a few minor remedies. While herbs, required to be gathered in certain phases of the moon or conjunction of the planets were employed, both and above all, his lancet was his main reliance and he seemed to have used it on all occasions." Like father like child, such being the state of medicine and of the medical practitioner in the old world, what else could be expected of the art and the artist when transported to the new world! Medicine during the early days in the colonies received scant consideration. Few doctors accompanied the early settlers to this country. In Virginia, Capt. John Smith had with him two or three doctors of reputation, for a time. William Penn also brought to Pennsylvania one or two reputable practitioners. Samuel Fuller, a passenger on the Mayflower, was the earliest practitioner in Massachusetts. He was a deacon but is continually referred to in the records as the surgeon of the Colony though not a graduate of medicine. In the Colony of New York there were several graduates in medicine from Utrecht, the great Dutch medical center, who came across with the original settlers or followed them shortly. Most of these returned before or at the time the colony became an English possession. The first of these who made his appearance in New Amsterdam was one by the name of Johannes LaMontagne (3), a learned Huguenot gentleman, who arrived in the Spring of 1637. He was born in 1595 and received his degree from the University of Leyden. In addition to being the doctor of the colonies, he was the schoolmaster. He also occupied a seat in the Council, and as Vice-director in command of Fort Orange he surrendered the Fort when the English took possession. He is supposed to have returned to Holland with Governor Stuyvesant in 1665. For the most part the colonies, outside of one or two cities like Philadelphia and New York, were without medical graduates. When one considers how sparsely the country was settled and consequently what few inducements there were to bring medical graduates across the seas, this is not surprising. For the first one hundred years or more, much of the medical care in the colonies was supplied by the clergy. They were almost without exception highly educated. Many of them

preparatory to coming to America had studied medicine on the other side. The rôle of doctor had been played by the priests for many centuries in Europe. In the absence of medical men what could be more natural than that the guardians of men's souls should assume at the same time the care of their bodies! In Connecticut no physician accompanied the first colony to Hartford in 1636. Mr. Hooker, the leader, had some medical qualifications, but in times of epidemic there must have been severe suffering. The first practitioner in Connecticut was Thomas Pell, born in Sussex, England, in 1613, to whom the General Assembly granted liberty "to buy all the lands of the Indians between Westchester and the Hudson River." The purchase included a large tract of land later called the Pelham Manor. Here Pell lived and transacted business although he died in Fairfield, Connecticut, in 1663. A distinguished practitioner of medicine in New England was Rev. Gershon Bulkeley (4), of Weathersfield, Connecticut, who lived during the middle of the seventeenth century. He graduated from Harvard in 1655. He was for a time minister of the Weathersfield church but later devoted himself entirely to medicine. An interesting description of one of the doctors of those days is found in an account of "Dr. Thaddeus MacCarty, a New England Country Doctor of Pre-Revolutionary Days" (5), written by one of his descendents. Dr. MacCarty was born in Worcester in 1747. He was a graduate of Yale, having as one of his teachers who prepared him for college, John Adams. From the record he has left, it does not seem that the future president of the United States was particularly distinguished as a teacher; certainly he spent most of his time in day-dreaming, possibly contemplating the stirring scenes through which he was to pass a little later. Dr. MacCarty, like so many others, acquired his knowledge of medicine by studying with an older physician. He first resided in Massachusetts and later in New Hampshire. His biographer, commenting on the conditions under which he had to practice medicine, says: "It is scarcely possible in this day of improvement to form any adequate idea of the labors of these men. There were no roads, nothing but the rivers. The doctor kept four or five horses and having constant calls, kept himself and the horses in perpetual

motion. I have often heard him in after life relate the toils and adventures of this period and how many narrow escapes he had of broken neck and limb. In one instance, when his horse was in full trot on a winding road through the woods on a very dark night, he ran his head full butt against a tree. Both he and the horse were prostrated on the ground."

Clergymen continued to act in the capacity of doctors down to the beginning of the last century. One of the best-known physicians in eastern Pennsylvania was a minister by the name of Matthew Wilson, born in 1734, who practiced medicine until the time of his death in 1790. A book written by him entitled "A Therapeutic Alphabet" (6), showed that he had good sound medical knowledge as well as good common sense. He never graduated in medicine. Medical men did not confine themselves always to their profession but with it often combined some form of manual work. Their charges, considering the long distances and poor roads they had to travel over, were surprisingly small. An extract from the account of one Jasper Gun, who practiced medicine in Connecticut, dated April 16th, 1659 (7), is as follows:

Due from Fra Barnard for her girles	
For a dose of pills	02
For 6 doses of pul diat . . .	12
For castor, 18 doses	9
For vissites, 25 times . . .	12
For purge of Rhubarb . . .	02
Received of him in coine . . .	16
in butter	

Medicine would seem to be much more highly valued than "journeys or visits" as they called them. In the same entry there is a charge for "my 'too' journeys, 8 shillings."

The earliest book on medicine appearing in the colonies was a little pamphlet entitled "Medical Directions Written for Governor Winthrop" by Edward Stafford of London (8). On it appears the notation "Prepared for the benefit of Governor Winthrop here in New England. The original collection of receipes made in 1643 by some London physieian." This was

reprinted in 1862 with notes by Oliver Wendell Holmes. Some of the prescriptions are most amusing. For madness, he was directed "To take ye herb hypericon (St. John Wort); for pains in ye breast or limmes, wear a wilde catt's skin on ye placee grieved" while for the "King's Evil" (Smallpox) Governor Winthrop is advised "to use two toads, letting them rest two or three days that they spewe out their earth."

The learned London doctor adds that by this course there is no doubt of the cure by God's assistanee. Commenting on this remedy Dr. Holmes speaks of the reference to toads in Boecaecio and in Shakespeare.

"That they were 'ugly' as Shakespeare says, none will dispute. That they were 'venomous' may perhaps be questioned. That they wear 'precious jewels in their heads' must be confessed a fiction. Boecaecio's story of Pasquino and Simona may not be remembered by all my readers. The first who was the lover, seated near his ladylove, plucks a leaf of a bush of sage, swells up and dies. The ladylove does the same thing and also dies. Under the sage was found a monstrous toad."

There are twenty-three references in Shakespeare to "toads" including the one which Dr. Holmes quotes, from "As You Like It." They all give the impression that the toad was an obnoxious animal to be hated, if not to be feared.

Dr. Holmes, in his delightful way, dwells on the remedies recommended in this quaint little book, only six by seven inches in size, as indicative of the treatment that our forefathers were wont to receive. He points out that few of them were to be taken internally and most of them sought to accomplish what the medical men of to-day strive for, *i.e.*, removing from the system in one way or another, the poison that it contains. Governor John Winthrop, to whom the book was sent, was the most distinguished physician of his time in New England. He was born in 1606 in Groton Manor, England, and studied at Trinity College, Dublin, and law at the Inner Temple, and came to this country with his father, Governor John Winthrop, of Massachusetts. He was Governor of the Connecticut Colony from 1651 to 1659. In 1662 he visited England and was elected a member of "The Royal Society for Improving Useful Knowledge," which had been estab-

lished the year before. While there he contributed a number of valuable papers to the Society. His advice was sought far and wide through New England. He appeared to be the great consultant of the New England Colonies. He devised a medicine called Rubila, which had an extended reputation. It was not known for many years what this consisted of, but finally the formula was found and it proved to be a mixture of antimony, nitre and a little salt of tin. It seemed to be a general cure-all.

Just as Governor Winthrop was the most distinguished medical man of the seventeenth century in the colonies, so Benjamin Franklin was the most famous doctor of the eighteenth century. Franklin never received a degree in physic, although it was so generally believed that he had, that several of the best engravings of him are inscribed, "Benjamin Franklin, Doctor of Medicine." While this is true, Franklin possessed more medical knowledge than almost any man of his time. His inquiring mind took him into many lines of medical research including the application of electricity to disease. He wrote numerous articles upon medicine and was the founder of the Pennsylvania Hospital, of which he was the first president. Franklin's advice was sought on all sides—indeed medicine formed such a considerable part in his life that Dr. William Pepper has written a most interesting book on "The Medical Side of Benjamin Franklin" (9).

Another early contribution to medicine was written in 1677 by Dr Thomas Thatcher, also a clergyman, called a "Brief Rule to Guide of the Common People of New England, how to order themselves and others in the 'small pox' or measles" (10). Smallpox both in Europe and in the Colonies was one of the most common and most fatal diseases. Our forefathers were a sturdy lot of men and women who required little medicine. They were more concerned with the salvation of their souls than with the preservation of their bodies. Indeed, that their souls might not suffer, they had scarcely reached here before they founded an institution of learning at Cambridge, Mass., where men could be trained for the ministry.

Medicine was not solely in the custody of the minister, however, because, as we have just seen, Governor Winthrop, of Connecticut, as well as his father, Governor Winthrop, of Massachusetts, had an established reputation for medical skill.

The medical profession bore an honorable part professionally and otherwise in the Revolutionary War. Major-General Joseph Warren, who lost his life at the Battle of Bunker or Breed's Hill, was a distinguished physician. The leaders of public sentiment were largely from among the physicians of the colonies. Of the signers of the Declaration of Independence the following were physicians:

Josiah Bartlett, of New Hampshire
 Matthew Thornton, of New Hampshire
 Oliver Wolcott, of Connecticut
 Benjamin Rush, of Pennsylvania
 Lyman Hall, of Georgia.

Many of them were men of liberal education, graduates of colleges at home and abroad. Many without these higher advantages were the peers of their associates in intelligence. With very few exceptions they were earnest patriots. The most influential of them were men of decided religious character, members and officers in their local church.

In the first hundred years or more in the colonies there were few if any laws governing the practice of medicine. As a result there was abundant opportunity for quacks to apply their trade to the misfortune and detriment of those whom they attended.

The most renowned of all these quacks, in fact probably the most famous quack that America ever produced, was Dr. Elisha Perkins (11), of Plainfield, Connecticut. Dr. Perkins was born on January 16, 1741, and is said to have studied at Yale (this is doubtful). He was the son of a well-known doctor of Plainfield and practiced medicine himself for a number of years until he devoted his entire time to the manufacture and sale of his famous metallic tractors. These were employed on the theory that metallic substances had an influence upon the nerves and muscles, because Perkins had noted once during an operation a certain contraction of a muscle whenever the metal instrument was brought in contact with it or was drawn or stroked over the affected parts. They consisted of two rods or pieces of metal about three inches long, seemingly of brass or iron, similar to a horse shoe nail, rounded at one end and pointed at the other. The

most distinguished men in the nation testified to their value. Perkins went to England and made enormous returns by selling them. He returned to this country to perish from yellow fever, for which he had made use of his tractors in endeavoring to cure himself. His son, a graduate of Yale, carried on their manufacture for many years. Since Perkins' day many other quacks have arisen, including only recently Abrams, with his diagnosis of disease made by studying the blood cells. No one, however, has ever attained the fame of Perkins.

Dr. William Douglass, who settled in 1718 in Boston, says in his "Settlements in North America" (12) regarding the practice of medicine in the colonies: "In our plantations a practitioner bold, rash, impudent, a liar, basely born and uneducated has much the advantages of an honest, modest gentleman. In general, the physicial practice in our Colonies is so perniciously bad that excepting in surgery and some acute cases it is better to let nature take her course than to trust to the honesty and sagacity of the practitioner. Our American practitioners are so rash and officious that the saying of the Apocrypha may with propriety be applied to him: 'He that sinneth before his Maker let him fall into the hands of the physieian.' When I first arrived in New England, I asked a noted and facetious practitioner what was their general method of treatment. He told me it was uniformly bleeding, blistering, purging, anodynes, etc. If the illness continued, there was *repetendi* and finally *murderandi*." We have often admired the courage of our ancestors, but in the light of this we scarcely have given them credit enough for the way that they bore their sufferings.

During the Dutch occupation of New York, the care of the sick was largely entrusted to a class of experienced nurses called "Zieckensroosters" or "comforters of the sick." The care of the women in childbirth was entirely in the hands of midwives and continued so, well into the eighteenth century, the custom preventing any male physieian from officiating. Three of the famous midwives in the Dutch Colonies were Lysbert Dirksen (1638), Tryntje Jansen and Annetze Jansen, the last of whom, as you may recall, owned or inherited much of what is now Manhattan Island.

At the opening of the Revolutionary War it is estimated that there were 3,500 medical men in the colonies, not more than 400 of whom were graduates of medical schools. Among these, Edinburgh was conspicuous for the number of its distinguished graduates. The founders of the University of Pennsylvania, Morgan, Shippen, Rush, were all graduates of that famous university. The first medical diploma awarded by a university in this country was awarded by Yale University to Dr. Daniel Turner, of London, in 1723. The circumstances under which this was awarded are interestingly told by John E. Lane in an article on the "Annals for Medical History for 1919" (13). Turner was born in London in 1667. He was a member of the Guild of Barber Surgeons. "The doctor of the seventeenth century was either a chirurgion (contracted into surgeon in the eighteenth century), physician or barber-chirurgion, the designation of doctor not coming into use in America until about 1769. This association of the surgical and tonsorial art seems very curious to one living in the twentieth century, but it arose in a very simple and natural way. Physicians have been known in history from the earliest recorded times. A chirurgion (from the Greek words, *xeir*, hand, and *epyon*, work) seems to have been at first merely an assistant of the physician, performing for him various minor duties. This condition existed through the days of Greek and Roman civilization, but during the Dark Ages the practice of medicine in Europe fell almost entirely into clerical hands, and the duties of both physician and surgeon were performed by the priesthood. Certain abuses crept in which led the ecclesiastical authorities to interfere and forbid the clergy from practicing outside their monasteries. And again, as we find recorded in various Councils of the Church during the ninth and tenth centuries, the shedding of blood by the clergy as in surgical operations was absolutely interdicted. In order to retain their practice they were in the habit of sending out their barbers to perform blood-letting and other of the minor operations in surgery. By that time the shaven priesthood had come into being, and the barber was an attaché of every monastic institution. As we can readily see, these monastery barbers very soon began to practice independently. As they grew in number and strength they became incorporated into special crafts, that of the barber-surgeons of England being regularly chartered in the

fourteenth century. This institution became one of the wealthy corporations of London, and flourished for four centuries, and it was not until 1745 that it became separated into two crafts, that of the barbers on the one hand, and the surgeons on the other."

Turner was a man of distinction in medical circles in London and no doubt felt that he was at a distinct disadvantage in not being a physician. This, one could not usually become without being a graduate of one of the great universities, Oxford or Cambridge. Turner was a graduate of neither. He could have probably gotten a degree from Edinburgh, but Edinburgh at that time was not in favor because of certain questionable practices in the matter of bestowing degrees. He was acquainted with the rector of Yale University and through him presented to Yale a collection of medical books which are still to be found in the Yale library. This prompted him to apply to Yale for a degree in physic. His degree was entirely an honorary one. Turner never came to this country. For two hundred years surgeons like Turner strove to separate from the barbers but without avail till 1745, five years after Turner's death. The Royal College of Surgeons was chartered in 1800.

The first medical school in this country is that of the University of Pennsylvania, which was founded in 1765 and which graduated its first class of eighteen men in 1769 with the degree of Bachelor of Medicine. The first degree of Doctor of Medicine after a course of study, was bestowed by the Medical School of Kings College, City of New York, now the College of Physicians and Surgeons of Columbia, upon Robert Tueker in 1770.

The medical department of the army was organized by and had as its first director Dr. Benjamin Church who was succeeded by the distinguished Dr. John Morgan, of Philadelphia, the founder of the Medical School of the University of Pennsylvania. He was succeeded in 1777 by Dr. William Shippen, Jr., also a professor in the same university, who served in that capacity till 1781 when he was succeeded by Dr. John Cochran. The army hospitals were for the most part improvised structures. In Cambridge, during the siege of Boston, several of the private houses were turned into hospitals, and churches especially, for a number of years were used for that purpose. A letter from Dr. Morgan to Dr. John Warren, the brother of the famous Gen-

eral Warren, who lost his life at Bunker Hill, will best explain the serious difficulties under which the department operated.

“I send you two scalpels; in case you want more, use a razor for an incision knife. I have a handful of lint and two or three bandages, that is all. What in the name of wonder can I do in case of an attack. God only knows. Without assistance, without instruments, without everything.” Think of that from the Surgeon-General of the United States Army! In a later letter he complains of having too few regimental surgeons and too frequently those whom he had were incapable of doing their work. At one time he had two hundred ill with no doctor to attend them. Lack of food and proper protection against the weather took off many of those who were sick. Indeed, it is probable that more lost their lives from disease than from wounds. A happy exception to the incompetency of the crudely-educated army surgeon was Charles Frederick Wiesenthal (14), who was born in Prussia in 1726 and after a thorough medical education came to this country and settled in Baltimore. He took a high professional rank among the practitioners of the South and during the war served as a surgeon with the Maryland troops. The description of the dress of Dr. Wiesenthal throws an interesting light on the appearance of the better class of medical men in those days. Dr. Wiesenthal wore a scarlet cloak, three cornered hat, blue velvet coat, gold buttons with buff facings, lace ruffled shirt, knee breeches, stockings, white or blue, silver shoe buckles, plain white cravat, wig and cue tied with a black ribbon. This was not without objection from medical men of those days. We are told that “some of the physicians of New York entered into a contract to distinguish themselves from their fellow citizens by a method of wearing their hair. Among the rest, it was proposed to Dr. John Jones, one of the most distinguished physicians of the time, whose father and grandfather were physicians before him. He indignantly and properly declined to enter into such an arrangement, declaring that he considered that and every similar means to impose upon the weakness or credulity of others, as unworthy the member of a liberal profession, and as intended to enforce upon them began to disrespect which their own conduct and abilities and strength they beand. While the other doctors in the town, he barber-surgeons cting about in the new-fashioned bob, Dr.

Jones could not be distinguished from any well-bred gentleman of any other profession. Of course an attempt was made to boycott him by a plan not altogether unfamiliar to physicians now living, namely, by refusing to consult with him. The result was as might have been expected; on the first occasion in which this plan was brought into practice the physician who refused to consult with Dr. Jones was promptly dismissed, and Dr. Jones installed in his place." Dr. Jones was a graduate of the University of Rheims. Upon his return to New York he was made Professor of Surgery in the College of New York. He became a warm personal friend of both Washington and Franklin. He died at the age of sixty-two.

Conclusion

Such is the story of the doctors of our forefathers. Would that we possessed the magic pen of a Washington Irving to narrate it as it should be given. The medical profession to which as student and practitioner we have belonged for nearly forty years is to us the noblest of all callings, the ministry not excepted. You all are acquainted with the charming description of the old country doctor by Ian MacLaren in his "Beside the Bonny Briar Bush" (15). What is more touching than his account of the old Scotch physician as he made his way on horseback o'er hill and down dale with his simple remedies in his saddle bag, bringing with him what is far more efficacious than any drug, the reassuring confidence found in his homely countenance? He may not have possessed the learning of an Osler nor even the knowledge which his city colleagues of that day possessed, but what was far more valuable he brought with him knowledge gained of experience, sound judgment and above all a heart of sympathy and love. What greater assets can a physician bring to our bedsides to-day! The respect accorded the minister and doctor in the community a hundred years ago no longer is shown them. We live in a totally different age. It is no longer aristocracy but democracy which controls. The physician of to-day is not called upon to take the arduous journeys or to undergo the hardships of his colonial predecessor.

However deserving he is of this lessened respect, there can be nothing but admiration for his noble predecessor of two hundred years ago.

We conclude with this fine tribute from the "Recollections" (16) of the late Vice-President Thomas R. Marshall:

"I think, if service is to be the true mark of greatness in a people, all these other wonders of a wondrous age and state must pale into insignificance beside the service and sacrifice of the country doctor. Who now remembers the conditions under which he sought to minister to minds and bodies diseased? Who now, by any stretch of the imagination, can bring to view the awful roads, the inhospitable houses that were called homes, the lack of furnaces, bathrooms, hot water, electricity, gas; mud everywhere, cracks in the houses everywhere, children waking in the morning with their blankets covered with snow, huge fireplaces where you roasted on one side and froze on the other? And add to it all a malarial climate. Chills and fever—fever and chills. Day in and day out, night in and night out, storm and sunshine, the country doctor went his rounds."

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ABSTRACTS OF PAPERS PRESENTED AT SECTION MEETINGS

Section of Surgery, October 7, 1927

POST-OPERATIVE COMPLICATIONS OF SUPPURATIVE APPENDICITIS

CONDUCT W. CUTLER, JR.

This paper reviews the post-operative complications of suppurative appendicitis as seen in a fairly busy surgical service over a period of five years

During this space of time, in a total of 974 cases of acute appendicitis, there have been treated at The Roosevelt Hospital from January 1, 1922, to January 1, 1927, 392 cases of suppurative appendicitis. From this group are excluded all such cases as have been classified either as chronic or interval appendicitis. Excluded also are those cases, 582 in number, classed as acute appendicitis, in which no suppurative process was present at operation or later supervened. The rather restricted group which remains comprises those cases in which definite suppura-

tion requiring drainage was present. These cases showed empyema or gangrene of the appendix (either partial or complete) or perforation, or marked exudate, and were associated with more or less widespread peritonitis or with abscess. It was in this group that complications of the disease were most frequently encountered and proved of the most vital consequence. There were 83 cases, or 21 per cent. of this series which developed complications.

Reviewing these cases with reference to the pathology encountered at operation, it was found that 290, in addition to the pathology of the appendix itself, had a local peritonitis or peri-appendiceal abscess, while 102 had diffuse peritonitis. As to the results of treatment in the 392 suppurative cases, 337 were discharged cured, 14 improved, while 41 died. These figures represent a mortality from all causes of 10.5 per cent. of the drained cases (and 4 per cent. of all acute appendices).

In the treatment of these cases, the diagnosis of acute appendicitis was considered the indication for immediate operation. At operation, following a cleansing enema, shave and iodine preparation, the right intermuscular incision was the approach of choice. The appendix was removed in all cases except where its extirpation was hindered by a need for shortening the operation on account of the patient's condition, or by the danger of spreading septic material in the peritoneal sac by excessive manipulation. The stump was inverted whenever possible. Gangrene of the appendix, rupture, or the presence of a purulent exudate were the indications for drainage. Suction was uniformly employed to remove carefully all obtainable septic exudate.

The post-operative complication which, in this series, gave the greatest concern and was responsible for 63 per cent. of the total mortality was that of peritonitis. When, in these cases, it became evident that a spreading peritonitis had developed or had not begun to subside after operation, it was the policy of treatment to discontinue all nourishment and fluid by mouth, to keep the patient in Fowler's position and to administer normal saline solution by hypodermoclysis, or saline in glucose by vein, and tap-water by rectum. Morphine was used for the control of pain and to insure quiet, but not to the extent of full narcoti-

zation. Instead of favoring "bowel-splinting" it was the policy of treatment to stimulate bowel elimination with the objects of avoiding the toxic effects of ileus and of controlling distention. To this end colonic irrigations were employed, usually in conjunction with pituitrin hypodermically. Ox-gall and milk-and-molasses enemas were also used, and hot stupes applied to the abdomen. Lavage was resorted to to control vomiting and gastric dilatation. Transfusion as a means of general support has been found of value in a number of the cases.

Of the 102 cases classified as having diffuse peritonitis at operation, 71, or nearly 70 per cent. controlled the disease and went on to recovery under this treatment, while 27 proceeded with fulminating peritonitis. In addition, four cases of diffuse or generalized peritonitis developed following operation on cases in which a more or less localized abscess was found. Of the total of 31 cases in which this complication of peritonitis developed or was not controlled 26 died. The five who survived raise the recovery rate in all cases of diffuse peritonitis to 71.7 per cent., almost the exact figure reported by Fowler in 1911.

High enterostomy was performed for paralytic ileus in five of these cases on the second and third days. One recovered.

The second post-operative complication in order of frequency in this series was secondary intraperitoneal abscess. This complication developed eighteen times in the 392 drained cases, or 4.6 per cent. The development of these abscesses was usually signaled by the failure of the temperature to subside, or by its recurrence, attended by pain, more or less distention and the presence of tenderness or a palpable mass. Ten of these abscesses were successfully drained through the original operative wound. The remaining eight required operation for relief. Of these, four were subphrenic abscesses, two were in the right lumbar gutter, two subhepatic and two were in the left lower quadrant.

Of the eighteen patients developing secondary abscesses five died, including two of the four subphrenic cases. The two subphrenic cases which survived were drained by rib resection. Here, as in the instance of general peritonitis, multiple complications played a part in the mortality.

The plan of treatment followed in these cases of secondary abscess was to await the definite localization of the abscess mass, then to approach it for drainage by the shortest feasible route. In three cases spontaneous drainage occurred through the wound.

In this series there were five cases of fecal fistula, or about $11\frac{1}{2}$ per cent. There were no fatalities. Three of these fistulae closed spontaneously, two requiring secondary operation for repair. Three of the fistulae occurred as complications of secondary abscesses, the remaining two developing at the wound site.

As a measure to prevent the possible development of fecal fistula by gut necrosis from drain pressure, daily shortening of the drains by an inch or more was the practice. Once the tract was well established the drains were usually removed entirely from the fourth to the eighth day after operation.

Mechanical ileus as a subsequent complication of these drained cases occurred five times in the group under study (1.3 per cent.). One such complication developed in a case with diffuse peritonitis and secondary subhepatic abscess. An euterostomy was done on the twenty-seventh day with recovery. Another recovered following drainage of a secondary abscess on the ninth post-operative day. Of three cases of ileus which developed as a result of adhesions following diffuse peritonitis, one recovered after division of adhesions, one after ileostomy, and one died after a colostomy done a month following the original appendicectomy.

None of the patients returning to our follow-up clinic have given evidence of frank obstructive symptoms as a late complication, although there have been a number complaining of constipation. As a routine following recovery from peritoneal inflammation, laxative diet and the use of mineral oil have been advised.

Cellulitis of the abdominal wall with abscess formation occurred in three cases. These recovered satisfactorily following drainage. There was one case in which rather wide sloughing of the wound required skin grafting for repair. During the past two years we have adopted the suggestion of Pool advising against the suture of these drained appendicectomy wounds beyond the parietal peritoneum. While no statistics can be

quoted from our records on this point, we have been impressed by the fact that we see much less sloughing of muscle and fascia than when suture was done, and that the unsutured wounds granulate more satisfactorily and heal more rapidly. This applies to the intermuscular incisions, as we have not ventured to leave our rectus incisions unsutured.

As to the late result in drained wounds, the recall clinic has produced six post-operative hernias, or 1.5 per cent. None of these occurred in unsutured cases. Of the six hernias four occurred in intermuscular incision scars and two in rectus incisions. Since the reported figures for post-operative hernia in especially-followed groups is much higher than in this series, it is fair to suppose that there have been other cases of hernia which have not returned to our follow-up clinics.

As a measure of prevention against post-operative hernia it has been the custom to advise the wearing of a supporting belt for at least six months after operation in the drained cases.

Of the incidental complications in these patients there were a number. Diabetes was present in three, with two deaths. One of the fatal cases had diffuse peritonitis and died on the sixth post-operative day. Insulin was used in this case. The other death occurred in a patient 66 years of age, with severe nephritis besides the diabetes. No insulin was employed. The case which recovered improved following appendicectomy with drainage of an abscess under the use of insulin. Abortion in pregnant cases occurred three times in the series with two deaths. These fatal cases both belonged to the general peritonitis group. The recovery followed miscarriage on the ninth day after appendicectomy and drainage of an abscess. Uremia was noted as occurring twice in elderly patients, once in a spreading peritonitis case and once following the drainage of an abscess. It proved fatal in both instances. No record of parotitis was found in the group under study.

Pulmonary complications, pneumonia or bronchitis, developed post-operatively in eight cases (about 2 per cent.) and resulted in two deaths. Empyema occurred in one case. Pulmonary embolism resulted in one fatality on the fifth post-operative day, while the one other patient in whom this accident occurred made a good recovery.

Review of this group of cases presenting post-operative complications in suppurative appendicitis presents several features which are perhaps worthy of comment. Pulmonary inflammations accounted for one-tenth of the complications. Abdominal wall infection was infrequent, and sloughing was apparently less in unsutured wounds. Post-operative hernia was rather infrequent, being relatively much less common in intermuscular than in rectus incisions. Mechanical ileus was rare, accounting for but one death in the series. Fecal fistula was not a prominent complication, and in but two instances was it possibly ascribable to the presence of drains in the wound. Spontaneous closure was the rule. Next to spreading peritonitis, secondary abscess was the most frequent complication. The majority of these were within reach of the wound. Of the remote secondary abscesses, those of the subphrenic type proved the most grave. The presence of an intercurrent uremia, diabetes, or pregnancy constituted a grave handicap to the patient suffering from severe intra-abdominal infection. Uncontrolled or progress-peritonitis remained, as it has always been, the least responsive to treatment, the greatest menace to the patient, and the most trying problem to the surgeon.

*Section of Otology, in Conjunction with the New York League
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FAKES AND FADS IN DEAFNESS CURES

(Abstract of illustrated talk.)

ARTHUR J. CRAMP

Quackery is always plausible and credulity is not necessarily a sign of low intelligence. We are all credulous when we wander in strange fields. The number of quacks and faddists who defraud and deceive those who cannot hear, or who hear with difficulty, is large, considering the restricted field in which they work. Most of the practitioners in this line are crude charlatans; a few possibly come within that "twilight zone" of medical practice where it is difficult to differentiate between the quack with a scheme and the visionary with a theory.

Some deafness-cure quacks carry their alleged cures merely as sidelines to other medical fakes. Some sell elaborate but worthless courses of treatment; others dispose of devices that are always valueless and, frequently, dangerous. Still others, physicians of mediocre ability, are itinerants who stay usually not more than twenty-four hours in one place.

Some time ago a quack at Kansas City, Missouri, exploited an alleged deafness cure through the mails. He had an "electromagnetic head cap," which was said to revivify the nerves, some strychnine tablets, some ear drops containing glycerine and carbolic acid, and a gargle. The postal authorities finally put an end to this business by declaring the thing a fraud and debarring it from the use of the United States mails.

More recently there has been another fraudulent deafness cure exploited from Kansas City. It was known as "Virex," and previously had been called "Rattlesnake Oil." It, of course, contained no rattlesnake oil. Not that it would make any difference if it had. What it did contain was some oils of eucalyptus and camphor, Neatsfoot oil, and oil of mustard. The postal authorities got around to this fake and declared it a fraud.

There are on the market a number of so-called artificial ear drums or ear phones. They are both worthless and dangerous. There are also oils that are sold to be applied to the back of the ears, for the purpose of curing deafness. One of these was seized by the government officials on the charge that it was misbranded under the Food and Drugs Act, because the claims were false and fraudulent. The court upheld this charge and ordered the product to be destroyed.

Deafness-cure quackery, like all other forms of quackery, will continue to flourish just so long as the public is ignorant of the facts. Again, it must be emphasized that it is not so much a lack of intelligence as a lack of knowledge that makes people credulous. The quack who knows how to word his appeal can gull the intelligentsia as easily as he can convince the illiterate. It was Talleyrand who boiled down the philosophy of the quack: "To succeed in the world it is much more necessary to possess the penetration to discover who is the ignoramus than to discover who is the wise man." The best that the medical pro-

fession can do in protecting the public is to turn the light on the methods of the faddist and the quack, so that his ignorance or fraud becomes apparent.

Section of Ophthalmology, October 17, 1927

LOSS OF VITREOUS

ISAAC HARTSHORNE

The method of teaching usually used by the late Maurice Richardson, of Boston, always impressed his students with its practical advantages. He spent most of his time in the lecture room telling us about his mistakes and seldom if ever mentioned his successes.

In this same vein of thought, I wish to record three cases of extreme loss of vitreous, with the hope that a statement of the errors helping to cause this unfortunate accident, together with a description of the after care which doubtless contributed largely to the unusually happy results in two of the three cases, may help someone else under similar circumstances. I do not in any way wish to appear to condone vitreous loss nor to lessen any younger surgeon's healthy respect for the vitreous.

These were all private patients, aged 64, 70 and 63, respectively; 1st, male; 2nd and 3rd, female.

Two of these cases are taken from the series of my modification of the Barraquer-Green intracapsular operation and will be detailed again in a future report of this type of operation. The third was an attempted capsulotomy.

The first two were so similar that they can be discussed as one case. Deep intra-orbital anesthesia, after the method of the Greens, and infiltration of both the upper and lower lids were used so that the patient could not voluntarily close the eyelids and could not rotate the eyeball to any extent. This precluded the possibility of squeezing. That I am no longer in favor of this type of anesthesia and have given it up will be discussed at some future time.

In each case the vacuum cup was applied and took hold of the lens perfectly and there was no presentation of vitreous before the lens was extracted in capsule. In each case immediately after the withdrawal of the lens the wound gaped widely and at least a third of the vitreous rolled out before the eye could be closed. The upper lid was then gently lifted away from the globe with a muscle hook; and with a flat spatula, as much of the escaped vitreous as possible was wiped away from the wound and the corneal edge of the wound placed in contact with the scleral edge. One per cent. noviform ointment was put in the eye and the eyes closed and routinely covered.

Both of these cases were among the earlier ones in my efforts with the vacuum operation. In trying to combine pressure below the cornea with traction from above, the prolonged pressure caused the wound to gape instead of closing, after the removal of the lens. This explanation was suggested to me by Dr. Alfred Wiener, who was present at each operation, and I believe it is correct. This led me to discard the special instrument used by the Greens for this purpose and to use instead the combined Fisher needle and Smith spoon. With the needle the cornea is lifted so that the vacuum cup can be inserted under it. Turning the instrument end to end in the left hand, the edge of the spoon is then used to produce gentle and almost negligible pressure below the cornea while the traction from above withdraws the lens. The upward motion of the right hand holding the vacuum forceps is followed by the left so that the flat of the spoon holds the cornea in place and the wound does not gape. Since adopting this procedure, I have had no loss of vitreous at this stage in the operation.

After finishing the first of these operations, Doctor Wiener remarked that I would take that eye out in a few days. Six months later I asked him to examine this eye and he said: "All I can say is that it is not the same eye."

The third case was a hard lens with adherent capsule which did not look fully mature. This patient was from beginning to end the worst squeezer I ever had. When I get another like this I shall certainly use a general anesthetic. Up to the time to operate I had expected to do a vacuum intracapsular but her bad

squeezing made me decide to do a capsulotomy. Both upper and lower lids were infiltrated with 2 per cent. novocain, which reduced the squeezing to a minimum, but she still seemed able to push the eyeball forward without closing the lids.

The cystotome apparently made no impression on the lens capsule. When I attempted to express the lens by pressure from below as if I were doing a Smith extraction, the zonule broke at the top of the lens, allowing vitreous to present, but in another second the lens came upward without tumbling and filled the wound so no vitreous was lost at that stage. Here, again, after the lens was extracted the wound gaped widely and at least one-half of the vitreous rolled out, and even after closing the eye the whole vitreous body seemed to fill the wound and kept the cornea from going back into place. After some coaxing with a flat spatula and holding the upper lid with a muscle hook, I succeeded in tucking the corneal edge of the wound up under the scleral edge, as that was the nearest to coaptation I could get. As I expected a collapsed eyeball, this at least could do no harm. Routine dressing to both eyes as if nothing had happened.

In the first two cases I did not use a flap. In this case I had dissected a Van Linté flap but could not pull it into place because of the partially collapsed eyeball. This would have been a good case for Beren's untied suture flap, but this type of flap in my hands has interfered with my section, tending to make me cut too deeply, so I do not use it.

Suggested improvements in the third case are several:

First.—A general anesthetic might well have been used. And yet if this precaution had been taken she squeezed enough at each dressing to ruin any eye.

Second.—Too much pressure below the cornea in the effort to rupture the zonule will cause excessive gaping of the wound.

Third.—This might have been a good case for the Knapp-Török operation.

Fourth.—When the zonule breaks above so that vitreous presents, it is safer to use a wire loop or Hess spoon inserted behind the lens and lift the lens out without further pressure from below.

The correctness of this last suggestion became evident one week later when our house surgeon was doing a cataract for me. This patient did not squeeze, but the cystotome did not rupture the anterior capsule and pressure below the cornea caused vitreous to be present at the wound. I at once relieved the doctor of the operation as it was evident that a storm was ahead, and with a wire loop inserted behind the lens, easily extracted it in capsule with no loss of vitreous. This is a procedure we have all used many times and it is dramatically helpful or tragically omitted.

After treatment: If cases 1 and 2 had been dressed in 24 or 48 hours as is customary, I firmly believe a good result would not have followed. The patients were kept as quiet as possible and the eyes not dressed for five days. The Greens do not dress their vacuum cases for ten days, which I have found impracticable. Both eyes were kept covered with dressing and mask for ten days. No medication was used except 1 per cent. noviform ointment and an occasional drop of 1 per cent. atropine and 25 per cent. argyrol.

When the eyes were allowed really to open, the wound in each eye was not fully closed, though firmly healed. There was no prolapse of iris. The scar tissue was increased and the wound closed tightly with daily applications of 1 per cent. silver nitrate and dressing applied to keep the eye closed for several days.

Case 1 was discharged from the hospital in sixteen days; case 2 in twenty-three days. Both cases had a hammock, but not drawn-up pupil. There is no depression of the scar in either case.

In case 3, I expected a collapsed eyeball and so removed the dressing in 24 hours and found the lower part of the eyeball normally rounded and full—the cornea and wound were not inspected—the dressing was reapplied and the eye left alone for four days more. In this case the wound was ragged and irregular but finally closed with silver nitrate and pressure bandage. On the twelfth day and for several days this patient could count fingers, but a few days later could only distinguish light, and I found practically complete detachment of choroid and retina but with a well-rounded eyeball. Doctor Norton Fletcher and

later Doctor Colman W. Cutler saw this patient with me in consultation and both felt that there was no need of removing the eyeball at that time.

RESULTS IN CASES 1 AND 2

Case 1.—Combined iridectomy and vacuum intracapsular extraction on June 10, 1925. At all times the fundus has been seen easily and the vitreous has been perfectly clear without opacities.
1st Glasses: July 31, 1925.

$R + 9.50 + 5.50 \text{ ax } 35 = 20/40 + 2$

3.00 Added for near, gave $V = 1.5 \text{ D.}$

This vision gradually improved to 7/26/26:

$R + 9.50 + 4.25 \text{ ax } 25 = 20/15 - 3$

+ 3.00 Added for near gave $V = 0.75 \text{ D.}$

On May 18, 1926, I did preliminary iridectomy on his other eye and a capsulotomy extraction on June 15, 1926. No vitreous was lost and the best vision obtained was $20/15 = + 9.50 + 3.75 \text{ ax } 10$ and + 3 added for near gave $V = 0.75 \text{ D.}$

This patient has a progressing *tabes dorsalis* and is developing optic atrophy with decreasing vision. It is now 20/40 with each eye. Each vitreous is perfectly clear and there are no abnormal fundus changes other than increasing pallor of the discs.

Case 2.—Following preliminary iridectomy I did a vacuum intracapsular extraction on January 26, 1926. The vitreous has shown no opacities and the fundus has remained negative. There has developed marked sclerosing keratitis downward about 3 mm. from the corneo-scleral wound. An unusual apparently non-inflammatory grayish white membrane has gradually developed from above downward over the surface of the vitreous, behind the iris and not attached to it. Fortunately this membrane stopped about 1 mm. above the inferior pupil border and so has not obstructed vision. In fact it has aided vision because it makes a pinhole opening at the lower margin of the pupil.

1st Glasses: 3/4/26/

$R + 9.50 + 4 \text{ ax } 45 = 20/40 + 3$

+ 3.00 added for near gave $V = 0.75 \text{ D.}$

This vision gradually improved with several changes of glasses. She is now wearing:

$R + 12.00 + 1.00 \text{ ax } 90$ and + 3.00 added for near.

When last tested, 2/3/27 :

Distance vision = $20/15 + 3$ and near vision
= 0.50 D type.

In spring of 1927 she was in an automobile accident without injury to the eye.

In June, 1927, she fell down a flight of stairs head first, and while no bones were broken she was badly bruised and confined to bed for several weeks. I have not taken the vision since then but the family report that it seems to be as good as ever. I saw this patient at home September 23, 1927, and the eye was in perfect condition without vitreous or fundus changes. Her vision was not taken but it appeared to be excellent including reading of fine print.

Case 3 went through the expected course of extreme loss of vitreous and doubtless the eyeball will have to be removed.

Cases 1 and 2 show that marked loss of vitreous does not necessarily mean a lost eye, especially if good coaptation between the cornea and sclera are obtained before the final dressing; and provided the eye is left alone long enough to give a chance for firm closure of the wound and for the eyeball to fill with aqueous.

Cases 1 and 2 have brought to my mind the following argument:

In the presence of marked loss of vitreous, the eye has a greater chance of preservation if the lens has been extracted in capsule than if the posterior capsule was left behind: because, since vitreous is not replaced, the eyeball must be refilled by some fluid to be preserved and that fluid would naturally be the aqueous. If the posterior capsule is intact, its upper edge will quickly heal in the scar and prevent the aqueous from filling the vitreous cavity, and hence allow the eyeball to collapse because of lack of sufficient contents to hold it. Whereas, if the capsule entire has been removed with the lens, the hyaloid having been ruptured, the aqueous has more opportunity to enter the vitreous cavity and so fill the eyeball to its normal capacity. This is what I believe happened in these two cases. This conclusion, however, does not in the least make me anxious to experiment further in the loss of vitreous. I know of nothing in ocular surgery that is more nerve-racking than to see the wound gape and vitreous flow out.

DISCUSSION

Col. Wright (Madras) remarked that apart from vitreous loss during the delivery of the lens one met with cases where the section gaped and the vitreous presented in the wound or actually escaped subsequent to a perfect delivery with reformation of the *fossa patellaris* and falling back of the iris.

In such cases one must consider choroidal hemorrhage or choroidal engorgement as possible causes. In his experience it was difficult to demonstrate such conditions and he had seldom actually proved choroidal detachment ophthalmoscopically. One rather assumed that an increase in volume of the posterior segment after a perfect delivery was of choroidal origin, and that it tended to readjust itself.

Dr. Knapp would like to ask if the loss of vitreous were not due to adhesions between the posterior capsule and the post-lentil space. He does not believe that the aqueous fills the eye replacing the vitreous.

Last February Col. Wright did fifty intracapsular vacuum extractions after the Greens' method. There was no loss of vitreous in those cases.

Section of Ophthalmology, October 17, 1927

A CASE OF CYST OF THE RETINA

MARTIN COHEN

The history of the patient is as follows:

He was examined three and one-half years ago in school and both eyes were found to be normal. One year later he was examined again in school and the left eye was found to be poorer and he was sent to get glasses. The doctor who examined him at that time gave him glasses with which, he says, vision was good in his left eye and he wore these glasses for school and reading. Last fall he was examined in school and saw only the first three lines on the chart. He then went to an optician who gave him other glasses. He went along without paying attention to his eyes until last fall when school began. He was again examined and his left eye was found to be extremely poor and so, following recommendation of a friend, he came to me.

I found the vision of the right eye to be 20/20 and the left eye, 10/200. The right eye was normal but showed emmetropia. The left eye showed about three diopters of hyperopia. It was externally normal. The vitreous was clear with the exception of a few large floating opacities. The disc was normal. There was a sharply defined, cyst-like detachment in the extreme nasal periphery of the fundus, transparent and at its lower edge showing a crescent-shaped reddish area.

There is visible with a plus 12 to 14 diopters lens, a shiny, glistening, elongated body in the cyst which looks like a light reflex. The retina adjoining the cyst, in the lower periphery of the fundus, is detached. The detachment is shallow and extends from the periphery to the outer three-fourths of the eyeball, and from above extends downward toward the disc in the form of two or three whitish streaks.

These findings were observed on September 20, 1927. One week later he came to the clinic for an examination and the condition was approximately the same. One week later he called again, at which time the detachment had extended so the entire fundus showed a shallow detachment. The appearance of the cyst in the nasal periphery is unchanged. I thought the shiny, elongated body seen in the cyst might be a Cysticercus; it might also be a light reflex which moves as the cystic detachment moves.

Section of Ophthalmology, October 17, 1927

LENTICONUS POSTERIOR

HENRY H. TYSON

A case of Lenticonus posterior was presented, with two drawings showing the appearance of the same as viewed with the slit lamp, the history of the case being as follows: J. W. T., aged 25 years, male, chauffeur, applied at the Knapp Clinic for glasses to relieve the poor vision in his left eye, which had existed all his life. Vision, R. 20/20; L. 20/200 w-2, 75 20/50. In examining his eye with the ophthalmoscope the oil drop appearance characteristic of the condition was present, associated with a

small opacity in the posterior cortex of the lens running back near the posterior pole, but not reaching it, and with a great difference in the refraction existing between that of the center of the protruding conus and that of the surrounding peripheral lenticular zone, amounting to more than several dioptries of myopia with a sudden distortion of the images of the margin of the base of the conus which are signs indicative of true lenticonus posterior. The eye backgrounds were normal, while with the slit lamp the picture varied constantly, depending upon the angle and depth of focus used.

The anterior part of the lens was normal, including the embryonal nucleus. The anterior "Y" was readily seen in the normal position, the striae being rather more marked than normal. The posterior "Y" on the other hand was seen only in parts and with great difficulty; whether it was absent or only masked by the white reflex from the opacity lying just behind it could not be positively determined.

The posterior surface of the lens was marked by a saucer-like depression projecting into the vitreous (regarded from the anterior view) approximately circular in outline, but somewhat irregular and wider below than above. It occupied about one-fifth the diameter of the posterior lens surface, and its depth appeared to be about one-third of its diameter, the edge being fairly sharp, but not knife-like. The posterior lens surface immediately surrounding this depression was rather hazy in irregular patches, and within the depression itself the surface showed several round or oval areas of opacity and other areas of roughening, which caused an irregular reflection of the light beam, giving the effect of opacity, though not really opaque. Embryonal hyaloid remains were not recognized, either because absent or obscured and confused by the opaque or hazy areas described. The ring reflex or Vogt, though present was not marked, being in part gray or opalescent, and lacking the fiery brilliance described in other cases. This may be due to the relative shallowness of the conus in this case, with resultant obtuseness of the angle of demarkation. This shallowness may also account for the absence of the horizontal lightband noted in Dr. Marsh's case, when the vertical slit beam crossed the edge of the conus.

A striking feature of the case was an irregular conical opacity in the posterior part of the lens, situated axially between the embryonal nucleus and the normal position of the posterior pole. Broad and flat anteriorly it had an irregular posterior taper to an end like a trumpet mouth, at about the normal curve of the posterior surface. No connection between it and the actual surface could be seen, but possibly some fine threads may extend backward to the surface, concealed on account of the possible angle of observation. Except for its separation from the actual surface, and its irregular form, this opacity resembled one shown and described by Vogt (as figure 234 of his atlas).

In its anatomical characteristics as well as its mathematical ones, the conus in this case seems to occupy a position between Dr. Marsh's case and the one described by Vogt.

Section of Medicine, October 18, 1927

INFRACLAVICULAR TUBERCULOUS INFILTRATIONS

MAURICE FISHBERG

Pulmonary tuberculosis in which the lesion is strictly localized to the apex is very common and, a point which has not been emphasized by clinicians is, that the prognosis in such cases is, as a rule, very good. It seems that apical lesions are usually sclerotic in character, remain dormant, only now and then having exacerbations, but recover quickly. It is very rare that a lesion limited to the apex should spread further down in the lungs and ultimately prove fatal. These patients usually live as long as the average individual, and when death ensues it is most likely due to some non-tuberculous disease.

Recent clinical observation tends to show that in active pulmonary tuberculosis the first or initial lesion appears in most cases in the region of the lung below the clavicle, most commonly in the upper lobe, but at times in the middle or lower lobe, and that these lesions are not of the indurative type just mentioned as characteristic of apical involvement, but of the exudative,

bronchopneumonic and finally caseous type. Physical signs are almost entirely lacking, and in the very beginning the constitutional symptoms may be very mild, hardly inconveniencing the patient for a long time. Only roentgen examination of the chest reveals these lesions, which have been called infraclavicular infiltrations by Assmann, who first described them in 1924.

The onset is usually insidious, the patient losing in weight and strength, coughs, and expectorates blood. In some cases hemoptysis out of a clear sky is the first symptom noted by the patient. A physical exploration of the chest may not reveal any signs of a localized lesion in the lungs, and the patient is told that he suffers from bronchitis, neurasthenia, etc. But in some cases a bacteriological examination of the sputum brings to light tubercle bacilli. A roentgenogram shows that the lesion is not in the apex but below the clavicle. The shadow seen in that region appears as a soft, cloudy, almost homogeneous patch the size of a cherry to that of a pigeon's egg in the midst of healthy lung tissue. The outer margin of the shadow is usually irregular, but now and then it is clear cut and sharply demarkated. These shadows are in many cases located near the periphery of the lung field, but are met with in exceptional cases in any place of the lung.

In a large proportion of cases the disease runs a mild, benign course; the infiltration is absorbed within a few months, hardly leaving anything to indicate its previous location; or linear shadows, characteristic of sclerosis, remain on the roentgenogram. More commonly, in progressive cases, the infiltration undergoes liquefaction and a cavity is formed. Now and then we meet with cases in which the cavity shrinks, at times it may even become completely obliterated. In others the infiltration spreads, involving the greater part of the upper lobe and we then deal with the usual tuberculous lesion seen in progressive cases. These isolated lesions, and isolated cavities, may be found in some cases in the lower lobe of the lung, in others the infiltration is seen to extend like a band across the chest, simulating an interlobar effusion.

Available evidence is in favor of considering these infiltrations as secondary or metastatic deposits of tubercle bacilli from old

dormant lesions acquired during childhood. In some cases the tuberculous infiltration is in itself not as large as it appears on the roentgenogram, but the shadow represents the perifocal or allergic reaction of the lung tissue to the invading infective agent.

These infraclavicular lesions are most commonly found in young persons between 15 and 25 years of age. It seems that they are more apt to occur in individuals who have been excessively exposed to tuberculous infection; who have lived with persons suffering from progressive tuberculosis; or who work with tuberculous material, as physicians, nurses and workers in pathological and bacteriological laboratories. Inasmuch as these seem to be the very earliest lung lesions, we may assume that they are found in this class of persons because these are the very ones that submit to medical, bacteriological and roentgenological examination earlier than others who have had no experience with this disease.

Section of Medicine, October 18, 1927

WORK CAPACITY OF THE TUBERCULOUS*

GRANT THORBURN

After patients who have successfully carried on their curing leave the sanatorium and return to their families and home, they enter one of the most important periods of their cure. Either their disease is healed and they become an asset to themselves, their families and the community, or if a reactivation of their disease takes place, they return to their previous unfortunate status of incapacity and are a distinct liability.

The group that meets this question at first hand and every day, includes the clinician in private practice who treats tuberculosis, the doctor in tuberculosis clinics, family physicians, and medical officers of industrial houses and corporations, for it is to them that the patient returns following his treatment in an institution.

* This paper will be published in full in the *American Review of Tuberculosis*.

They must advise the man or woman in regard to work, and watch them, and assume the responsibility of their health after the disease has reached a state that permits their leaving the institution.

Their stay in the sanatorium frequently is all too short and they return with their disease only patched up and their confidence impaired.

The advice to get a "light out-door" job is a fallacy, for with such a job it is impossible to earn enough to live in proper hygienic surroundings and obtain proper food. The patient that stays well is the one that realizes his limitations and lives his life accordingly. For patients with means it is a rather easy problem, but for patients without money it is a very difficult problem.

A study was made of 1,000 odd cases of whom 676 were included and careful records kept over a period of three years.

This group of people certainly need attention and realizing this, the New York Tuberculosis and Health Association felt that a study of industry, of available, selected jobs and the effect of vocational and medical supervision was well worthy of study. It was also planned to gain some information in regard to work available for these cases in the city, to watch their physical condition and disease and see if these patients would "stand up" better than those not supervised. We hoped that in this way we could diminish the liability of the patients to relapse, for we believed the percentage of relapses to be high. We also hoped to work out some index or classification of an individual's ability to do selected work, bearing in mind the example of the successful classification of the New York Heart Association.

Under a decreasing donation from the Laura Spellman Fund, a three-year program was worked out, and a highly organized vocational and medical and social service "after care" department was formed, known as the "Vocational Bureau." Careful records of all cases handled in the three years were kept. Complete medical examinations were made and the patients were examined before being sent to a job, while waiting for a position, and after receiving work. To do this, evening clinics were held and painstaking case work, home visiting and social service done on all cases. A complete study of this work will be published this summer.

Certain types of work were ruled out as being not indicated for patients suffering from this disease, such as heavy manual work, dusty trades, grinding, polishing, etc. We found, however, a great many industries in which certain positions were available for these patients, and we attempted to place them in selected jobs as nearly like their former work as possible, and held them under close medical supervision.

We got back about 450 patients of a total of 676 for a final examination over a period of three months to three years, and found that 42½ per cent. remained the same, 33.3 per cent. improved and 24.2 per cent. retrogressed or died. Seventeen per cent. had a definite reactivation during the three-year period. We also compared a group of patients that were supervised at the bureau by a group that were not supervised. They were unselected as to stage and condition of disease except that no active cases were included.

We found that the supervised patients showed 35 more cases with the disease better, than those not supervised. We also found that many of these patients had complications in addition to their pulmonary tuberculosis. One hundred and eighty-one patients had one complication, 189 had two, 161 had three, and 59 had four or more, in addition to their disease.

A work classification was also prepared for the potential employee with tuberculosis. Three subdivisions were made in which it was shown whether the patient was considered feasible for full-time work, standing or sedentary, and finally, part-time.

We feel that this problem of after care is one of the most urgent questions to face in our efforts to get the better of tuberculosis. It is of little avail to build institutions, increase beds and segregate the tuberculous for treatment, taking them away from their homes and families, if you have no further final constructive routine for them to follow when the progress of their disease is halted and their symptoms cleared up.

Section of Orthopedic Surgery, October 21, 1927

THE PATHOLOGY AND PATHOGENESIS OF PERTHES' DISEASE

A. PHILIP ZEMANSKY, JR.

Lantern slides were exhibited illustrating the pathological picture of the head of the femur in a case of Perthes' disease. The findings were:

1. Extensive subchondral necrosis of bone and marrow.
2. Practically complete destruction of the epiphyseal line.
3. Fragments of dead bone surrounded by granulation tissue containing many multinucleated giant cells.
4. Fibrous tissue replacement of necrotic areas.
5. Osteoid tissue growing into fibrous tissue from cartilage above and from bone below.
6. Minute hemorrhages in the under surface of the cartilage.

From a review of the reported cases where the head of the femur had been examined pathologically the question of etiology and pathogenesis were discussed. The two most likely theories, infection and vascular occlusion were compared and the former eliminated from lack of pathological evidence in favor of bacterial invasion. The latter theory, on the basis of trauma to the blood vessels of the epiphysis, was held to be the most likely one, from the fact that the lesion closely resembled an infarct and that there was evidence of damage to those structures which carry the vessels supplying the epiphysis. The age distribution of the disease was explained on this basis, since before complete ossification the head receives no blood supply from the neck or shaft. Experimental results of Müller were cited to support this contention. Healing by formation of new bone was shown to be incomplete even after several years, and doubt was expressed as to the amount of spontaneous healing by new bone formation that can be expected in this disease, within a reasonable time.

INFECTED MYOMA UTERI; WITH REMARKS ON RED DEGENERATION

MEYER M. STARK

By red degeneration we mean a form of necrosis or necrobiosis, appearing in myoma uteri, the red or other discoloration resulting from the diffusion through the specimen of the blood pigments, following hemolysis from excess of lipoids present. A continued excess of these lipoids will give other hues, ranging from mahogany to yellow, and finally to grey. Thus, on section, is offered a macroscopic difference from the accustomed white and shiny appearance of the unaltered fibroids. This necrosis is an aseptic process, bacteria being evident only in the infected cases. Infection is secondary to the degeneration. It is not conceivable that the hemolytic bacteria, ordinarily present in the vagina or cervix, are responsible for the suppurations found.

The change usually affects only one tumor, if others are present, and the mass increases in size suddenly upon the advent of the necrosis, the color differs with the amount of haemolyzing agent present and duration of its activity, but is most frequently pink or reddish, and is not followed by severe invalidism. Infection, however, is serious, setting up a marked toxic phase, with high temperature and leucocytosis and is considered fatal unless operated upon.

Degeneration is not infrequent, occurring as often as five to seven times every 100 cases, and is much more frequent in pregnancy; operation is never urgent and sometimes unnecessary, and in pregnant cases is elective at or after full term, and not usually urgent in the course of the gestation. On the other hand, suppuration is rare. Bacteria present are coli, staphylococci and streptococci, but gonococci have not been reported.

Symptoms are pain, tenderness, increase in size of tumor. An acute onset, with peritoneal irritation, high temperature, nausea and vomiting, and a decided toxic phase accompanies the suppurating types.

Summary.—Degeneration of fibroids is associated with the presence of lipoids, the accumulation of which is dependent on the presence and extent of thrombosis or infection. Infection is never primary. Thrombosis is not thought to be primary and not always present; in infection, it is likely primary. The microscopy is characterized by hyaline and granular degeneration, replacing or separating the muscle fibers remaining by the presence of fat and of karyolysis, the fat probably resulting from muscle change. There is no round-cell infiltration. Pregnancy is a predisposing factor. Infection gives rise to toxemia and is fatal, unless operation is undertaken, and here the mortality is high; in simple degeneration, operation is oftentimes advisable and can be successfully performed.

Section of Obstetrics and Gynecology, October 25, 1927

ACTINOMYCOSIS OF THE OVARY AND FALLOPIAN TUBE

Report of Case with Pathologic Examination

ARTHUR STEIN

Actinomycosis involving the ovary, Fallopian tube or parametrium is an extremely rare condition, a survey of the literature yielding only forty-three cases to date. How the infection reaches the ovary in cases of ovarian actinomycosis, is a moot point. It was formerly believed that the ray fungus may enter the vagina and reach the ovary directly through the genital passages. A more likely theory is that the disease is secondary to intestinal actinomycosis. Actinomycosis has a predilection for the intestinal tract, and the lesion shows a tendency to burrow through the walls of the gut. The cecum and appendix constitute the favorite site for intestinal lesions, and it is easy to understand how the right ovary may become involved by a burrowing infection in this location. In the entire series of forty-three cases, the actinomycotic lesions in the genital tract were

located as follows: Ovaries alone, 17; tubes alone, 5; parametrium, 7; ovaries and tubes, 7; various combinations of ovaries, tubes, parametrium and uterus, 7.

The diagnosis of ovarian actinomyecosis cannot be made until laparotomy is performed. Even then it may be in doubt unless the characteristic sulphur granules are in evidence, although a large, worm-eaten ovarian tumor filled with multiple tiny abscesses is very suggestive. The gross appearance of the organs often suggests a neoplasm, until the pathologist's report establishes the true condition.

The prognosis, according to published reports, is bad. In thirty-seven cases in which sufficient data were given, twenty-seven patients died, nine were considered as improved when last observed, and only one was designated as apparently recovered.

Treatment is extremely unsatisfactory, especially in view of the fact that the diagnosis is seldom made before the lesion is far advanced. Where involvement is not too extensive, an attempt should be made to eradicate all of the diseased tissue. By way of medication, potassium iodide in large dosage is probably the only remedy that has been found of definite service; but many cases of abdominal actinomyecosis fail to show benefit from its use.

A case of actinomyecosis of the right ovary and Fallopian tube, with chronic salpingitis and peri-oöphoritis on the opposite side, is reported. The patient was a housewife, aged 39, whose only symptoms were pain in the right inguinal region and persistent fever. The uterus was enlarged, and there was a mass the size of an orange occupying the position of the right adnexa. The clinical diagnosis was right pyo-salpinx, and at laparotomy a pseudo-tumor composed of the right pyo-salpinx, the uterus, omentum and coils of intestines, all bound together by adhesions, was found. There was nothing to suggest the rare condition of pelvic actinomyecosis. A persistent, discharging fistula remained after the operation, and later the right inguinal glands broke down. A second laparotomy was performed but the patient died. Microscopic sections from the remains of the right ovarian tumor mass showed typical colonies of *Actinomyces bovis*.

PROCEEDINGS OF ACADEMY MEETINGS,
OCTOBER, 1927

STATED MEETINGS

Thursday Evening, October 6, at 8:30 o'clock

ORDER

I. EXECUTIVE SESSION.

Election of Fellows.

Election of a Trustee.

Action on amendments to Constitution and By-laws.

II. PAPERS OF THE EVENING.

a. The prevalence of disease, Edgar Sydenstricker, Statistician, U. S. Public Health Service, Washington (by invitation).

b. The cost of medical service, Louis I. Dublin, Statistician, Metropolitan Life Insurance Company (by invitation).

c. A campaign for health and safety in industry. Illustrated by motion pictures, Leland E. Cofer, Director, Bureau of Industrial Hygiene, State of New York.

Thursday Evening, October 20, at 8:30 o'clock

ORDER

I. EXECUTIVE SESSION.

II. THE WESLEY M. CARPENTER LECTURE.

The future food supply of the United States, Alonzo E. Taylor, Director of Food Research, Stanford University (by invitation).

SECTION MEETINGS

SECTION OF DERMATOLOGY AND SYPHILIS

Tuesday Evening, October 4, at 8:00 o'clock

ORDER

I. PRESENTATION OF PATIENTS.

a. Cases from the New York Skin and Cancer Hospital, service of J. Francis Aitken.

1. Presented by Paul E. Beehet.
 2. Presented by Binford Throne, service of
A. Schuyler Clark and Binford Throne.
 - b. Cases from the Mt. Sinai Hospital.
 - c. Miscellaneous cases.
- II. DISCUSSION.
- III. EXECUTIVE SESSION.

SECTION OF SURGERY

Friday Evening, October 7, at 8:30 o'clock

ORDER

- I. READING OF THE MINUTES.
- II. PRESENTATION OF CASES.
 - a. Suppurative appendicitis—paralytic ileus, enterostomy—recovery, Philip J. Lipsett.
 - b. Repair strangulated incisional hernia one year after simple drainage for appendix abscess, appendectomy, Frank B. Berry.
 - c. Acute suppurative pleurisy with secondary pneumococcus peritonitis, Paul A. Dineen.
 - d. Cases illustrating first paper of the evening, Condict W. Cutler, Jr.
- III. PAPERS OF THE EVENING.
 1. Post-operative complications of suppurative appendicitis, Condict W. Cutler, Jr.
 2. Preliminary medication and general anesthesia with special reference to the margin of safety in post-operative lung lesions (lantern slides and photomicrographs), Charles W. Hooper (by invitation), James T. Gwathmey.
- IV. GENERAL DISCUSSION.

SECTION OF NEUROLOGY AND PSYCHIATRY

Tuesday Evening, October 11, at 8:30 o'clock

ORDER

- I. READING OF THE MINUTES.

- II. IN MEMORIAM: Thomas William Salmon, Frankwood E. Williams.
- III. CASE PRESENTATION.
 Profound emaciation of unknown origin, John McD. McKinney.
- IV. PAPERS OF THE EVENING.
- a. Experiences with encephalography *via* lumbar route, E. D. Friedman.
 Discussion, Temple Fay (by invitation), Charles A. Elsberg, Foster Kennedy, Israel Strauss.
 - b. A visit to the Spanish school of neuro-histology, Lewis D. Stevenson.
 Discussion, Lawrence S. Kubie (by invitation), Wilder G. Penfield.
- V. EXECUTIVE SESSION.

SECTION OF OTOTOLOGY

Friday Evening, October 14, at 8:30 o'clock

Introductory meeting to "Better Hearing Week" held in conjunction with the New York League for the Hard of Hearing.

ORDER

- I. READING OF THE MINUTES.
- II. ADDRESSES.
 - a. Hearing, Louis I. Harris, Commissioner of Health.
 - b. The importance of public opinion regarding the hearing problem, Mrs. William Brown Maloney, Editor, Magazine Section, New York Herald-Tribune (by invitation).
 - c. Fads and Fakes in deafness cures, Arthur J. Cramp, Director, Bureau of Investigation, American Medical Association (by invitation).
 - d. The lay press cooperation in public health education, Mr. William H. Neel, Advertising Censor, The New York Times (by invitation).

SECTION OF OPHTHALMOLOGY

Monday Evening, October 17, at 8:30 o'clock

ORDER

- I. READING OF THE MINUTES.

II. PRESENTATION OF CASES.

- a. Lenticonus posterior, Henry H. Tyson.
- b. Lantern slide demonstration of mieroscopie preparations of contusions of the globe, Algernon B. Reese (by invitation).

III. PAPER OF THE EVENING.

Loss of vitreous, Isaae Hartshorne.

IV. GENERAL DISCUSSION.

V. EXECUTIVE SESSION.

SECTION OF MEDICINE

Tuesday Evening, October 18, at 8:30 o'clock

ORDER

I. READING OF THE MINUTES.

II. PAPERS OF THE EVENING.

a. Infraclavicular tuberculous infiltrations, Mauriee Fishberg.

b. Work capacity of the tuberculous, Grant Thorburn.

III. Discussion, Henry T. Chiekering, Emanuel Libman, James Alexander Miller.

SECTION OF GENITO-URINARY SURGERY

Wednesday Evening, October 19, at 8:30 o'clock

Program furnished by the Department of Urology, Yale University School of Medicine

ORDER

I. READING OF THE MINUTES.

II. PRESENTATION OF CASES.

Prostatic cyst with congenital absence of right kidney, Frederick Roberts, New Haven (by invitation).

III. PAPERS OF THE EVENING.

a. Tissue culture from interstitial cystitis, Charles Y. Bidgood, New Haven (by invitation).

b. Iodized oil as a pyelographie median, C. H. Newswanger, New Haven (by invitation).

c. Renal circulation following various types of nephrotomies, Clyde Leroy Deming, New Haven (by invitation).

IV. GENERAL DISCUSSION.

V. EXECUTIVE SESSION.

SECTION OF ORTHOPEDIC SURGERY

Friday Evening, October 21, at 8:30 o'clock

ORDER

I. READING OF THE MINUTES.

II. PAPERS OF THE EVENING.

- a.* Head-tilting and head-turning of ocular origin. Lantern slides. James Watson White.
- b.* Remarks on Legg-Perthes disease, with report of an operated case, Royal Whitman.
- c.* The pathology and pathogenesis of Legg-Perthes disease. Lantern slides. A. Philip Zemansky, Jr. (by invitation).

SECTION OF OBSTETRICS AND GYNECOLOGY

Tuesday Evening, October 25, at 8:30 o'clock

ORDER

I. READING OF THE MINUTES.

II. PRESENTATION OF CASES.

A case of infected myoma uteri showing red degeneration (with lantern slides), Meyer M. Stark.

III. PAPERS OF THE EVENING.

- a.* Actinomycosis of the ovary, Arthur Stein.
- b.* Difference between Hegar's and Ladin's sign of early pregnancy (with lantern slides), David W. Tovey.

IV. GENERAL DISCUSSION.

V. EXECUTIVE SESSION.

SECTION OF NEUROLOGY AND PSYCHIATRY

(Special Meeting)

Tuesday Evening, October 25, at 9:00 o'clock

ADDRESS:

"Some laboratory observations upon reflex action," Sir Charles Scott Sherrington, M.D., F.R.S., Oxford.

RESPONSE:

Samuel W. Lambert, President, The New York Academy of Medicine.

SECTION OF LARYNGOLOGY AND RHINOLOGY

Wednesday Evening, October 26, at 8:30 o'clock

ORDER

I. READING OF THE MINUTES.

II. PAPER OF THE EVENING.

The treatment of malignant disease of the larynx by means of diathermy, Professor E. Schmiegelow, Copenhagen (by invitation).

Discussion opened by Chas. J. Imperatori, John E. Mackenty, John McCoy, George A. Wyeth, Sidney Yankauer.

Preceding the meeting, the section will entertain Professor Schmiegelow at dinner.

COMBINED MEETING OF THE NEW ENGLAND PEDIATRIC SOCIETY,
PHILADELPHIA PEDIATRIC SOCIETY, AND SECTION OF PEDIATRICS
OF THE NEW YORK ACADEMY OF MEDICINE

Saturday, October 29

PROGRAM

9:30 a. m. Bellevue Hospital. Ward G6. Introductory remarks, Charles Hendee Smith.

Factors influencing the calcium level in the blood-serum of infants with tetany, Harry Bakwin.

Further observations, Charles R. Stockard.

Chronic nephritis in children, John D. Lyttle.

10:30 a. m. Inspection of the new pediatric pavilion.

11:30 a. m. Hospital of the Rockefeller Institute. Gasometric micromethods for clinical analysis, D. D. Van Slyke (by invitation).

Etiology, pathology and prevention of measles, T. M. Rivers (by invitation).

Cinematographic studies of normal and malignant cells, Alexis Carrel (by invitation), A. H. Ebeling (by invitation).

- 1:15 p. m. Luncheon at the Rockefeller Institute.
- 2:30 p. m. The New York Academy of Medicine. Healing in scurvy as shown by x-ray, Stafford McLean, Rustin McIntosh.
- The anatomic lesion of so-called pyelitis in infancy, James R. Wilson (by invitation), Oscar M. Schloss.
- Certain aspects of tuberculosis in infancy, Bela Schick.
- Seasonal variation of growth in children, Haven Emerson.
- 4:30 p. m. Inspection of the Academy Building.

SECTION OF HISTORICAL AND CULTURAL MEDICINE

Monday Evening, October 31, at 8:30 o'clock

ORDER

- I. READING OF THE MINUTES.
- II. PAPERS OF THE EVENING.
 - a. Early medical Americana, with demonstrations by lantern slides and books, Archibald Malloch (by invitation).
 - b. Colonial medicine, Thomas J. Harris.
 - c. Discussion as to the scope of the activities of this section.

NOVEMBER, 1927

STATED MEETINGS

Thursday Evening, November 3, at 8:30 o'clock

ORDER

- I. Executive session.
 - a. Report of the Nominating Committee. Nominations for one Vice-President for three years; Recording Secretary for three years; two Trustees for five years; three members of the Committee on Admission for three years and one for two years; one member of the Library Committee for five years.
 - b. Election of Fellows.

II. Paper of the evening.

Recent knowledge of epidemic diseases, Leslie T. Webster,
Rockefeller Institute for Medical Research (by invitation).

Thursday evening, November 17, at 8:30 o'clock

ORDER

I. Executive session.

II. The anniversary discourse.

"Mind and Body," John Dewey, Professor of Philosophy,
Columbia University.

SECTION MEETINGS

SECTION OF DERMATOLOGY AND SYPHILIS

Tuesday evening, November 1, at 8:00 o'clock

ORDER

I. Presentation of patients.

a. Cases from the Vanderbilt Clinic, J. Gardner Hopkins,
A. Benson Cannon, George C. Andrews, L. W. McCafferty.

b. Miscellaneous cases.

c. Skin and Cancer Hospital. Examination of clinical cutaneous lesions under filtered ultra-violet, Herman Goodman.

II. Discussion.

III. Executive session.

Note: Examination of cases is limited to members and their invited guests.

SECTION OF NEUROLOGY AND PSYCHIATRY

Combined meeting with the New York Neurological Society

*Tuesday evening, November 1, at 8:30 o'clock

ORDER

I. Reading of the minutes.

II. Clinical and Pathological presentation (lantern slides).

Aneurysm of the cerebral vessels, Irving J. Sands.

III. Papers of the evening.

* Please note change in date.

- a.* Cerebral pneumography. Its use and abuse, Wilder G. Penfield.
 - b.* The classification of extra-dural spinal tumors with remarks on the origin of the so-called endotheliomas, Charles A. Elsberg.
 - c.* The modern treatment of trigeminal neuralgia with case presentations, Byron P. Stookey.
- IV. Executive session.

SECTION OF SURGERY

Friday evening, November 4, at 8:30 o'clock

ORDER

- I. Reading of the minutes.
- II. Presentation of cases.
 - a.* 1. Traumatic rupture of spleen; splenectomy; auto-transfusion.
 - 2. Spindle-cell sarcoma of soft parts of calf; amputation; well five and a half years later.
 - 3. Strangulated femoral hernia; enterostomy; later enteroanastomosis with Murphy button, Bradley L. Coley.
 - b.* Fracture of both bones of leg (2 cases), William F. MacFee.
 - c.* Cases illustrating the first paper of the evening, John H. Garlock.
- III. Papers of the evening.
 - a.* The treatment of compound injuries of the extremities, John H. Garlock.
 - b.* Cervical and lumbar ganglionectomy in painful conditions of the extremities. Preliminary report, William F. Honan.

SECTION OF PEDIATRICS

Thursday evening, November 10, at 8:30 o'clock

ORDER

- I. Reading of the minutes.
- II. Papers of the evening.

- a. Neuroblastoma of the adrenal in young children, Martha Wollstein.
- b. The earlier diagnosis of measles, Philip M. Stimson.
Discussed by Oscar M. Schloss, Shirley W. Wynne.
- c. Some of the common dermatological conditions observed in infancy and childhood, A. Benson Cannon.
Discussed by J. Gardner Hopkins.

SECTION OF OTOLGY

Friday evening, November 11, at 8:30 o'clock

ORDER

- I. Reading of the minutes.
- II. Address: New histopathological findings in the ear in lues.
The importance of the general pathology of the ear (illustrated by lantern slides), Professor Gustav Alexander, Vienna (by invitation).
Discussion, Edward B. Dench.
- III. Executive session.

SECTION OF MEDICINE

Tuesday evening, November 15, at 8:30 o'clock

ORDER

- I. Papers of the evening.
 - a. Relation of high blood pressure to blood sugar, Herman Mosenthal.
 - b. The high-carbohydrate low-fat diet in the treatment of diabetes with and without insulin, H. Rawle Geyelin (by invitation).
 - c. Experiences with oral substitutes for insulin in the treatment of diabetes, A. I. Ringer, S. Biloon (by invitation), M. M. Harris (by invitation), A. Landy (by invitation).
- II. Discussion by Eugene F. DuBois, E. Brand (by invitation).

SECTION OF GENITO-URINARY SURGERY

Wednesday evening, November 16, at 8:30 o'clock

ORDER

- I. Reading of the minutes.

- II. Presentation of instruments.
A modification of the McCarthy cystourethroscope for inspection, diagnosis and treatment with electrical, surgical and non-operative methods, with lantern slide demonstration, Victor C. Pedersen.
- III. Papers of the evening.
A Symposium on Gonorrhea.
 - a. The present day treatment of acute gonorrhea in the male, Abram L. Wolbarst (by invitation).
 - b. The present day treatment of chronic gonorrhea in the male, Joseph A. Hyams.
 - c. The rôle of the gonococcus in sterility, Max Hühner.
 - d. The surgical complications of gonorrhea, Howard S. Jeck.
 - e. The joint and cardiac complications of gonorrhea, John H. Morrissey.
 - f. The use of diathermy in acute and chronic gonorrhea, Leo L. Michel.
 - g. Gonorrhea in the female, Horace E. Ayres (by invitation).
- IV. Discussion opened by Boleslaw Lapowski, Solomon Wiener.
- V. Executive session.

SECTION OF ORTHOPEDIC SURGERY

Friday evening, November 18, at 8:30 o'clock

ORDER

- I. Reading of the minutes.
- II. Presentation of cases illustrating the Orr method of treatment, Leo Mayer, Elmer P. Weigel, Samuel Kleinberg.
- III. Paper of the evening.
Asepsis and rest versus antisepsis in the treatment of infected fractures and joint injuries (lantern slides), H. Winnett Orr (by invitation).
- IV. Discussion to be opened by Frederic W. Bancroft, Walton Martin, Walter M. Brickner, Fred H. Albee, Leo Mayer, Samuel Kleinberg, Armitage Whitman, Elmer P. Weigel.
- V. General discussion.

SECTION OF OPHTHALMOLOGY

Monday evening, November 21, at 8:30 o'clock

ORDER

- I. Reading of the minutes.
- II. Presentation of cases.
 - a. A case of traumatic ocular muscle paralysis with retraction, Arnold Knapp.
 - b. Demonstration of gross and microscopic eye preparations, with suggestions for the successful preparation of eye specimens both gross and microscopic, Louise H. Meeker (by invitation).
- III. Paper of the evening.
Training of the blind in Germany, Betty Hirsch (by invitation).
- IV. Discussion by Ellice M. Alger, Edward Van Cleve (by invitation).
- V. Executive session.

SECTION OF OBSTETRICS AND GYNECOLOGY

Tuesday evening, November 22, at 8:30 o'clock

ORDER

- I. Reading of the minutes.
- II. Presentation of cases.
 - a. Intraligamentous pregnancy, full term (with lantern slides), M. O. Magid.
 - b. Intermedullary focal necrosis of the left frontal lobe, probably of hemorrhagic origin intercurrent in puerperal eclampsia, Joseph Binder (by invitation).
- III. Paper of the evening.
Recent advances in obstetric technic (with lantern slides and motion pictures), Paul Titus, Pittsburgh (by invitation).
Discussion by George W. Kosmak, John O. Polak, George H. Ryder.
- IV. General discussion.
- V. Executive session.

SECTION OF LARYNGOLOGY AND RHINOLOGY

Wednesday evening, November 23, at 8:30 o'clock

ORDER

- I. Reading of the minutes.
- II. Paper of the evening.
The location of the focus in optic nerve disturbances from infection, Leon E. White, Boston (by invitation).
Discussion opened by Colman W. Cutler, John E. Weeks, John M. Wheeler, Lewis A. Coffin, H. Beaman Douglass, E. Ross Faulkner.

SECTION OF HISTORICAL AND CULTURAL MEDICINE

Wednesday evening, November 30, at 8:30 o'clock

ORDER

Symposium in memory of Lister.

- I. Papers of the evening.
 - a. Biographical sketch and memorabilia of Lister, Archibald Malloch (by invitation).
 - b. An account of Lister's surgical work, George David Stewart.
 - c. An account of Lister's physiological work, John Tait, Professor of Physiology, McGill University, Montreal (by invitation).
 - d. Lister in relation to the Victorian background, Fielding H. Garrison, Washington (by invitation).

PRACTICAL LECTURES

The New York Academy of Medicine announces a second series of lectures for the general practitioner to be held on Friday afternoons at 4 o'clock. The profession generally is invited to attend.

1927

Nov. 4—Certain conditions in the diagnostic borderland between medicine and surgery: Carl A. Hamann, Professor of Applied Anatomy and Clinical Surgery, Western Reserve University, Cleveland.

Nov. 11—Diagnosis of diseases of the gall-bladder: Allen O. Whipple, Professor of Surgery, Columbia University, N. Y.

Nov. 18—Certain fractures and their management: John J. Moorhead, Post-Graduate Medical School and Hospital, N. Y.

Nov. 25—Postabortal and puerperal infections: B. P. Watson, Professor of Obstetrics and Gynecology, Columbia University, N. Y.

Dec. 2—Bronchoscropy, lung abscess from foreign bodies: Chevalier Jackson, Professor of Bronchoscropy and Esophagoscropy, University of Pennsylvania, Philadelphia.

Dec. 9—Acute disease of the accessory sinuses and its treatment: Thomas J. Harris, Post-Graduate Medical School and Hospital, N. Y.

Dec. 16—Present day treatment of gonorrhea in the male: Howard S. Jeck, Bellevue Hospital, N. Y.

Dec. 23—The responsibility of the doctor in the development of teeth and dental infections: William H. Haskin, Manhattan Eye, Ear, Nose and Throat Hospital, N. Y.

1928

Jan. 6—Early diagnosis of pulmonary tuberculosis for the general practitioner: Lawrason Brown, Saranac Lake, N. Y.

Jan. 13—Diphtheria, measles and scarlet fever control: William H. Park, Director of Laboratories, Department of Health, N. Y.

Jan. 20—The endocrine disturbances of childhood. Lantern demonstrations: Fritz Bradley Talbot, Professor of Pediatrics, Harvard Medical School, Boston.

Jan. 27—The diagnostic and therapeutic significance of the inorganic constituents of the blood: J. Harold Austin, Professor of Research Medicine, University of Pennsylvania, Philadelphia.

Feb. 3—Modern physiotherapy in medical practice: Harry Eaton Stewart, Director of School of Physical Therapy, New Haven.

Feb. 10—Radium in the treatment of cancer: Douglas Quick, Memorial Hospital, N. Y.

Feb. 17—A discussion of the developmental abnormalities about the lumbosacral juncture as the cause of backache: Russell

A. Hibbs, Professor of Orthopedic Surgery, Columbia University, N. Y.

Feb. 24—Bone tumors: James Ewing, Professor of Pathology, Cornell University, N. Y.

Mar. 2—The treatment of hypertension: Herman O. Mosenthal, Post-Graduate Medical School and Hospital, N. Y.

Mar. 9—Obesity: Pathology and treatment: Solomon Strouse, Associate Professor of Internal Medicine, Northwestern University, Chicago.

Mar. 16—Skin diseases due to animal parasites. Lantern demonstrations: Howard Fox, Professor of Dermatology and Syphilology, New York University, N. Y.

Mar. 23—Deafness and its prevention: Arthur B. Duel, Manhattan Eye, Ear and Throat Hospital, N. Y.

Mar. 30—The eye-ground in general diagnosis. A lantern talk: William Evans Bruner, Professor of Ophthalmology, Western Reserve University, Cleveland.

Apr. 13—Practical suggestions in the treatment of certain habit problems of children: Lawson G. Lowrey, Director, Institute for Child Guidance, N. Y.

Apr. 20—The treatment of asthma: William S. Thomas, St. Luke's Hospital, N. Y.

Apr. 27—The diagnosis of rectal diseases: Jerome M. Lynch, Polyclinie Medical School and Hospital, N. Y.

RECENT ACCESSIONS

Bauer, J. *Innere Sekretion*.

Berlin, Springer, 1927, 479 p.

Bayly, H. W. *Venereal disease*. 3. ed.

London, Faber, 1927, 242 p.

Behrend, M. *Surgical diseases of the gall-bladder, liver and pancreas*.

Philadelphia, Davis, 1927, 278 p.

Bronwer, B. *Anatomical, phylogenetical and clinical studies on the central nervous system*.

Baltimore, J. H. Univ., 1927, 67 p.

Bruce, H. A. *Your growing child*.

New York, Funk, 1927, 405 p.

- Cooper, E. A., & Nicholas, S. D. Aids to biochemistry.
London, Baillière, 1927, 188 p.
- Crohn, B. B. Affections of the stomach.
Philadelphia, Saunders, 1927, 902 p.
- Douthwaite, A. H. The injection treatment of varicose veins.
London, Lewis, 1927, 39 p.
- Drueck, C. J. Fistula of the anus and rectum.
Philadelphia, Davis, 1927, 318 p.
- Dumsday, W. H. Milk and dairies handbook.
London, Hadden, 1927, 264 p.
- Einhorn, M. Le tube duodénal.
Paris, Masson, 1927, 136 p.
- Emmel, V. E. The B N A arranged as an outline of regional and systematic anatomy. 2. ed.
Philadelphia, Wistar inst., 1927, 256 p.
- Félix Lagrange et ses élèves. (Pages choisies.)
Paris, Doin, 1927, 698 p.
- Fischer, I. Die Gynäkologie bei Dioskurides und Plinius.
Wien, Springer, 1927, 36 p.
- Handbuch der mikroskopischen Anatomie des Menschen. Hrsg. von W. Mollendorf. Vol. 3. Haut und Sinnesorgane. Vol. 5, pt. I. Verdauungsapparat.
Berlin, Springer, 1927.
- Hare, H. A. A text-book of practical therapeutics. 20. ed.
Philadelphia, Lea, 1927, 1094 p.
- Hesnard, A. Les syndromes névropathiques.
Paris, Doin, 1927, 247 p.
- Joseph, Baron Lister. Centenary volume 1827-1927. Edited . . . by A. Logan Turner.
Edinburgh, Oliver, 1927, 182 p.
- Keiller, W. Nerve tracts of the brain and cord.
New York, Macmillan, 1927, 456 p.
- Lane, Sir W. A. Secrets of good health.
London, Heinemann, 1927, 152 p.
- Lapicque, L. L'excitabilité en fonction du temps, la chronaxie.
Paris, Pr. univ. d. France, 1926, 370 p.
- Lewis, F. T., & Bremer, J. L. A text-book of histology.
Philadelphia, Blakiston, 1927, 551 p.

- Lewis, T. The blood vessels of the human skin and their responses.
London, Shaw, 1927, 322 p.
- Macfarlane, C. A reference hand-book of gyneeology for nurses.
5. ed.
Philadelphia, Saunders, 1927, 170 p.
- MacKee, G. M. X-rays and radium in the treatment of diseases
of the skin. 2. ed.
Philadelphia, Lea, 1927, 788 p.
- Malingwski, B. Sex and repression in savage society.
London, Kegan Paul, 1927, 285 p.
- Manual of psychiatry. Ed. by A. J. Rosanoff. 6. ed.
New York, Wiley, 1927, 697 p.
- McNeil, A. S. The cancer mystery solved.
London, Daniel co., 1927, 96 p.
- Morrow, C. A. Biochemical laboratory methods.
New York, Wiley, 1927, 350 p.
- Morse, W. Applied biochemistry. 2. ed. . . .
Philadelphia, Saunders, 1927, 988 p.
- Muller, J. P. My sun-bathing and fresh-air system.
London, Athletic pub., 1927, 126 p.
- Nicholson, W. Smoke abatement. 2. ed.
London, Griffin, 1927, 194 p.
- Pearl, R. To begin with.
New York, Knopf, 1927, 96 p.
- Penman, D., & Penman, J. S. The principles and practice of
mine ventilation.
London, Griffin, 1927, 303 p.
- Peter, L. C. The extra-ocular museles.
Philadelphia, Lea, 1927, 294 p.
- Poffenberger, A. T. Applied psychology.
New York, Appleton, 1927, 586 p.
- Poisonous plants . . . Ed. by A. W. Hill.
London, Etehells, 1927, 85 p.
- Robinson, E. S. Reeent progress in the prevention and treat-
ment of scarlatina, measles and diphtheria.
Providence, Snow, 1926, 61 p.
- Rowlands, R. P., & Turner, P. The operations of surgery. 7. ed.
New York, Maemillan, 1927, 2 vols.

- Sheehan, J. E. Plastic surgery of the orbit.
New York, Macmillan, 1927, 348 p.
- Stitt, E. R. Practical bacteriology, blood work and animal parasitology. 8. ed.
Philadelphia, Blakiston, 1927, 837 p.
- Strickler, A. Textbook on diseases of the skin and syphilis.
Philadelphia, Davis, 1927, 689 p.
- Thomas, E. Klinik und Pathologie des Status thymico-lymphaticus.
Jena, Fischer, 1927, 84 p.
- Transactions of the National association for the prevention of tuberculosis. London, 1927.
- Transactions of the New Hampshire medical society. 1926.
- Valentine, P. F. The psychology of personality.
New York, Appleton, 1927, 393 p.
-

FELLOWS ELECTED NOVEMBER 3, 1927

- David Beck, M.D., 145 West 86th Street.
- David Bloom, M.D., 135 East 50th Street.
- Van Alstyne Cornell, M.D., 110 West 55th Street.
- Millicent Mary Augusta Cosgrave, M.D., 52 East 78th Street.
- James Joseph Duffy, M.D., 350 Park Avenue.
- Genovese Serafino, M.D., 260 Fifth Avenue, L. I. City.
- Leopold Israel Glushak, M.D., 317 West 89th Street.
- Richard Emanuel Gordon, M.D., 106 Central Park West.
- Max Greenwald, M.D., 38 West 59th Street.
- Ralph Eugene Herendeen, M.D., 30 East 40th Street.
- Henry Keller, M.D., 498 West End Avenue.
- Julius Kurzrock, M.D., 178 East 111th Street.
- Nathan Magida, M.D., 514 West End Avenue.
- Eric Milton Matsner, M.D., 36 West 89th Street.
- John Neilson, Jr., 121 East 60th Street.
- Mortimer William Rodgers, M.D., 55 East 86th Street.
- Harry Clayton Saunders, M.D., 161 West 87th Street.
- Melchior Francis Rosary Savarese, M.D., 209 Washington Park,
Brooklyn.

Harry Paul Swift, M.D., 260 West 76th Street.

Louis Tulipan, M.D., 224 East 17th Street.

James Flandreau Van Fleet, M.D., 17 East 38th Street.

And for Associate Fellowship:

Isaac Neuwirth, B.S., 2144 Crotona Parkway.

RESOLUTION OF THE COUNCIL: DR. HERBERT S. CARTER

Resolved, That the Council of The New York Academy of Medicine hereby records its sense of deep loss in the death of Dr. Herbert S. Carter, a Fellow of this Academy.

Dr. Carter was elected a Fellow in 1905 and always had an active interest in its affairs. He was Chairman of the Section on Medicine in 1908, and a member of the Library Committee from 1920 to 1923. He was a member of the Committee on Revision of By-Laws in 1924, and was elected Vice-President of the Academy, serving for a period of three years, ending in 1926.

Dr. Carter was characterized by his unfailing patience, courtesy, gentleness and devotion to his practice. During a period of thirty-five years in the practice of medicine he displayed unfailing interest in the practice of his profession, particularly in his own chosen field. He was devoted to his patients and their welfare, and in the midst of a busy practice, while frequently affected by ill health, gave unsparingly of his time to many other useful fields of human endeavor.

Resolved, That a copy of this resolution be sent to the members of his family and be spread upon the minutes of this body.

OBITUARIES

DR. HERBERT SWIFT CARTER

Dr. Herbert Swift Carter graduated from Princeton in 1892 (B.A.) and from the College of Physicians and Surgeons of New York in 1895. He then served on the house-staff of the Presbyterian Hospital of this city and, after subsequent study in Berlin and other European centers, returned to New York to engage in the practise of medicine. He soon became a member of the Medical Boards of the Lincoln and other hospitals from which, after a number of years he withdrew to specialize in gastro-

enterology. It was rather a remarkable coincidence that for many years he had suffered from gastro-duodenal ulceration, one of the more frequent lesions he was called upon to treat, and which ultimately led to his death. About ten years ago he was appointed consulting-gastroenterologist to the Presbyterian Hospital, a position which he occupied at the time of his death.

Dr. Carter was a member of various social and professional organizations to none of which he was more loyal than to the Academy of Medicine. He was elected a Fellow of the Academy in 1905 and always took an active interest in its affairs. He was Chairman of the Section of Medicine in 1908, and a member of the Library Committee from 1920 to 1923. He was elected Vice-President of the Academy in 1923, in which capacity he served for three years; and was a member of the Committee on Revision of By-laws in 1924. He not only devoted much time and attention to these various executive duties, but contributed most generously as well to the needs of the Academy some fifteen years ago when its quarters were becoming cramped and inadequate.

In his under-graduate days, as an interne in the hospital, and in his subsequent private and hospital practise, Dr. Carter combined great professional skill with a most attractive personality. Quiet, unassuming and modest, he never made the slightest effort to advance his personal interests. On the contrary he was inclined to favor the choice of some less able professional rival to fill a vacant position on some hospital staff. To his patients Dr. Carter was most devoted. Rich and poor alike received equal attention and consideration, and to the latter he was frequently more than a physician in giving freely encouragement and advice. It will never be known how often he relieved in a substantial way the needs of those whose earning capacity had either been interrupted or destroyed.

It is difficult to give an accurate estimate of Dr. Carter's contribution to medicine. His medical skill, his culture and refinement, and above all his social charm, unquestionably served to place the medical profession on a higher plane. Fortunate indeed was that profession to have attracted to its ranks one who served it to such good purpose, and who would have equally graced any other profession that he might have chosen. The

influence for good that he exerted was felt by all his associates. It stimulated his juniors and those of his own circle to strive to develop the same nobility of character. It was not without effect on his seniors, and every one within his circle was the better for the contact. While his loss will continue to be most keenly felt by a host of friends and while his place can never be adequately filled, the influence of his example will go marching on to benefit many who will follow in his footsteps.

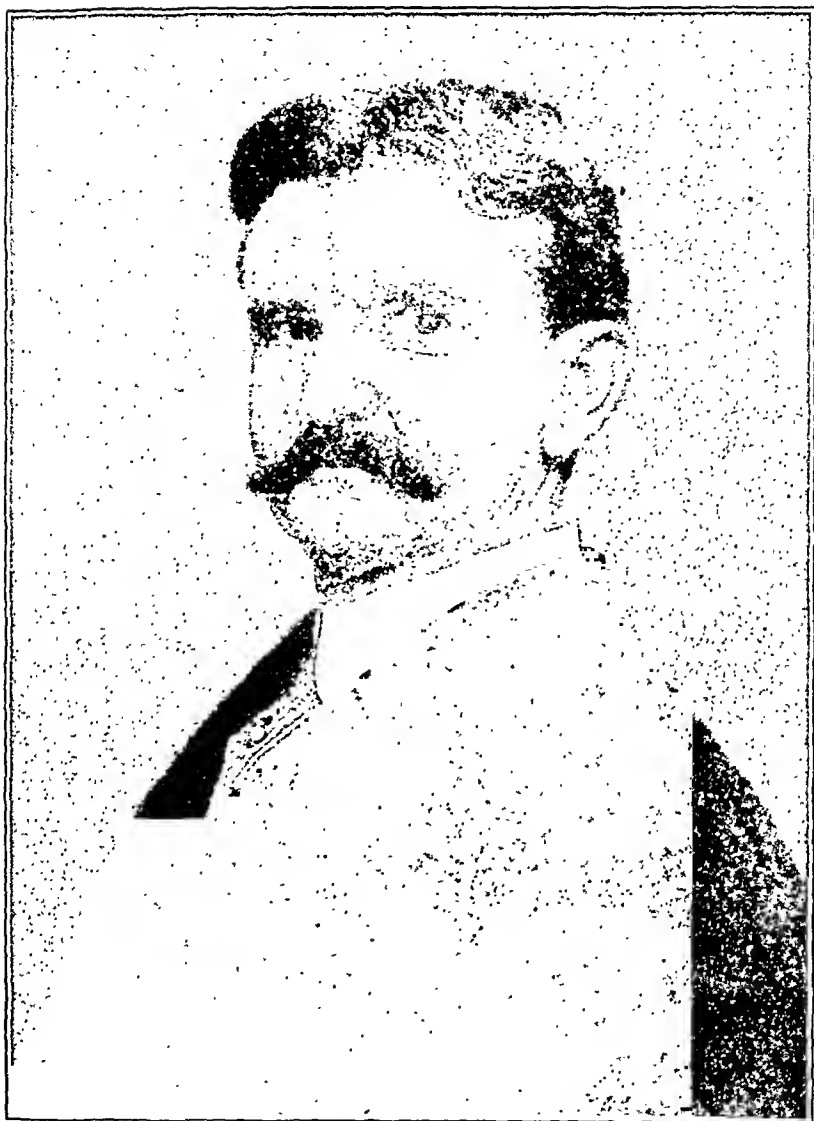
Of those who die nothing but good should be spoken. Dr. Carter was one of the few of whom nothing but good could be said when he was alive. He was never the object of ill-natured jealousy or envy, and many of his intimates who now mourn for him would involuntarily repeat Halleck's famous lines:

Green be the turf above thee,
Friend of my better days,
None knew thee but to love thee,
Nor named thee but to praise.

His like is rarely seen and to him all unite in giving homage.

His life was gentle; and the elements
So mixed in him that Nature might stand up
And say to all the World, "This was a Man."

ELLSWORTH ELIOT, JR.



DR. WILLIAM GILMAN THOMPSON

Dr. William Gilman Thompson was born in New York City on Christmas Day, 1856, and died in New York City on October 27, 1927. He was educated at the Hopkins Grammar School in New Haven and in Karlsruhe, Germany. He was graduated from the Sheffield Scientific School at Yale in 1877.

After obtaining his degree at the College of Physicians and Surgeons in 1881, he worked in various laboratories and dispensaries in connection with New York University and Bellevue Medical School, where he became Professor of Physiology in 1887 and in *Materia Medica* and Therapeutics in 1895 and Professor of Medicine in 1897. He was also Professor of Physiology at the Woman's Medical College from 1887 to 1895.

Upon the opening of the Cornell University Medical College Dr. Thompson retired from New York University and became Professor of Medicine at Cornell in 1898, which position he held until November, 1916.

He was visiting physician to the New York Hospital and the Presbyterian Hospital in 1887 at the age of thirty-one—one of the youngest physicians who had ever been appointed as visiting physician to these institutions. He was appointed visiting physician at Bellevue in 1896.

In 1883 Dr. Thompson began to contribute regularly to medical literature and published no less than one hundred and twenty-two articles. These articles were largely on clinical subjects, but there were a number which showed his early interest in matters relating to the progress of medicine but not definitely connected with the practice of medicine. A notable instance is his study of training schools with notes on twenty-two different schools, published in 1883. He also published a text-book on the practice of medicine which served a most useful and valuable purpose in aiding medical students to appreciate the whole range of medicine encompassed in one volume. He also published a text-book on occupational diseases which at the time was the only satisfactory text-book on the subject; also a treatise on "Practical Dietetics," N. Y., Appleton, which was issued in four editions—the first in 1895, and fourth in 1909. His contributions to literature covered a wide range of clinical subjects. He devoted a considerable amount of thought to the construction, management and educational value of hospitals and wrote vigorously about and also on the subject of nurses and nurses' training schools.

Dr. Thompson soon became associated with the New York Academy of Medicine, having been elected a Fellow in 1885. He showed a continued interest in its welfare and activities. He served as Vice-President 1904 to 1906, and as Trustee from 1909

through 1924. He was also elected a member of the Library Committee in 1894.

In his association with the Academy, Dr. Thompson was most assiduous in his duties. He attended meetings and took part in discussions with a definite sense of responsibility and was always clear and forceful in his remarks, showing always sound judgment and clear thinking.

Dr. Thompson rendered his greatest service to the Academy during his period of Trusteeship. He was always keenly alive to the responsibilities of this position. On more than one occasion he was offered the nomination as President of the Academy, but declined on the ground that he already had too much to do.

As he approached his seventieth birthday he was firm in carrying out his resolve to retire from all committee work and resigned from all Academy committees.

Dr. Thompson was a man of great kindness of character, with a deep human interest and sympathy, positive and at times dogmatic in his statements but always willing to compromise upon hearing the arguments of others, showing a rare open-mindedness.

As a teacher he had the opportunity of influencing hundreds of young physicians and was always a willing and helpful advisor to his former pupils.

Notwithstanding his years, he had the mental and physical vigor of youth, and it was often a surprise to his friends when they realized that he had passed three-score years, for his appearance, manner and mental outlook were those of a man twenty years younger.

His presence and his activity will be sorely missed, not only in medical circles, but also in civic institutions, to which he contributed a large amount of his time and energy.

DEATH OF FELLOW

FREDERIC SILVESTER MASON, M.D., 16 Fifth Avenue, New York City; graduated in medicine from the Medico-Chirurgical College, Philadelphia, Pennsylvania; elected a Fellow of the Academy, January 4, 1918; died, October 29, 1927. Dr. Mason was a Fellow of the American Medical Association and Assistant Syphilologist at the Bellevue Clinic.

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INDEX

AUTHORS

- Adler, Alfred, Feeling of inferiority and its compensation, 254
- Alden, Arthur M., Mastoiditis in infants, 591
- Allison, Nathaniel, Backache from the standpoint of the orthopedist, 224
- Anderson, Arthur Forrest, A study of tuberculin-positive children, in foster homes, 415
- Applebaum, Emanuel, and Neal, Josephine B., Encephalitis associated with measles, 414
- Aschner, Paul W., Embolic and metastatic phenomena in pleural and pulmonary infections, 528
- Baehr, George, Phosphaturia, 419
- Bissell, Dougal, Control of post-operative hemorrhage following nephrectomy for removal of renal calculi, 460
- Bohrer, John V., Treatment of acute suppurative pleurisy in children, 456
- Brackett, E. J., Reconstruction operations on the hip joint, 357
- Brown, Aaron, The perennial treatment of seasonal hay fever, 536
- Brown, Samuel A., The service of the Academy, 85
Address of the retiring president, 143
- Carp, Louis, Foreign bodies in the intestine, 100
Fracture of the fifth metatarsal bone with special reference to delayed union, 581
- Carr, Walter Lester, Dietary of the Childrens' Service City Hospital, 453
- Cohen, Martin, A case of cyst of the retina, 734
- Collins, Joseph, Dr. Walter B. James, 443
- Colp, Ralph, Chills in acute appendicitis, 104
- Corwin, Jean, and Herrick, W. W., Renal and cardiovascular disease in pregnancy. Their relation to certain general medical problems, 120
- Cramp, Arthur W., Fakes and fads in deafness cures, 726
- Cushing, Harvey W., Books and the doctor, 69
- Cutler, Condict W., Post-operative complications of suppurative appendicitis, 721
- Dana, Charles L., How young doctors should behave, 650
- Dannreuther, Walter T., Uterus duplex micollis, 473
- Delavan, David Bryson, Some important incidents in the recent history of The New York Academy of Medicine, 675
- De Schweinitz, George E., The College of Physicians of Philadelphia, 73
- Dowd, Charles N., Obituary: Dr. Howard C. Peck, 446
- Duel, Arthur B., The building of the Academy, 87
- Eliot, Ellsworth, Jr., Dr. Herbert Swift Carter, obituary, 764
- Epstein, H. J., and Fleischer, A. J., The disadvantages of the prolonged period of rest in bed post-partum, 428
- Feser, J., Static and kinetic innervation, 589
- Fishberg, Maurice, Infraclavicular tuberculous infiltrations, 737
- Fleischer, A. J., and Epstein, H. J., The disadvantages of the prolonged period of rest in bed post-partum, 428
- Floyd, Rolfe, The present status of the classification of Bright's disease, 244
- Friedman, E. D., A case of multiple dural neoplasms, 19
High cervical lesions in the guise of combined system disease, 162
- Furniss, H. Dawson, Brief discussion of three cases of extra-ureters, 472

- Garrison, Fielding H., Bacteriology and the theory of ultrascopic viruses. Editorial, 217
- Constitution and characterology, (cycloids and schizoids), 489
- Early mediaeval anatomy, 607
- The Gesolei at Düsseldorf, p. 1
- The healing power of nature, 479
- History of heating, ventilation and lighting, 57
- Protein stimulation (local death) and protein therapy. Editorial, 555
- A note on Girolamo Segato, 481
- New history of medicine (book review), 477
- Globus, Joseph H., Pathology of brain abscesses, 28
- Gregory, William K., Palaeomorphology of the human head; ten structural stages from fish to man, 525
- Grissinger, Jay W., Lieut. Col., M.C., U. S. A., The development of military medicine, 301
- Harbitz, Francis, Periarthritis novosa, 17
- Harris, Thomas J., Colonial medicine, or the doctor of our forefathers, 707
- Hartshorne, Isaac, Loss of vitreous, 728
- Hawthorne, Allan B., and MacKenzie, David W., Unilateral renal aplasia, 538
- Hemmeter, John C., The philosophy of history, 383
- Herriek, W. W., and Corwin, Jean, Renal and cardiovascular disease in pregnancy: Their relation to certain general medical problems, 120
- Hoag, Lynne A., Effect of parathyroid extract on tetany and rickets in infants, 468
- Hofbauer, J., Nasal application of pituitary extract for obstetrical purposes, The, 594
- Hopkins, J. G., Treatment of the commoner syphilitic lesions of the eye, 584
- Horn, Walter L., Traumatic mastoiditis with post-operative signs suggestive of an intracranial complication, 114
- John, Harold Thomas, and Kessel, Exophthalmic goiter and the autonomic nervous system, 422
- Hyslop, George H., Tumor of the medulla, 463
- Imre, Joseph, Protecting the eye by reflecting glasses, 98
- Jackson, Henry W., and Neal, Josephine B., Epidemic meningitis in the first three months of life, 413
- Kahn, Morris H., Cardiac asthma, 632
- Kennedy, Robert H., Fractures of the transverse processes of the lumbar vertebrae, 400
- Kessel, Leo, and Hyman, H., Exophthalmic goiter and the involuntary nervous system, 422
- Killian, John A., and Moore, John J., Metabolism in burns, 40
- Kirby, Daniel B., Cultivation of lens epithelium, The, 583
- Klebs, Arnold C., Historical perspectives in ophthalmology, 470
- Klein, Eugene, Gastric secretion after subtotal gastrectomy, 586
- Kraus, Walter M., Associated movements as found in invertebrate and vertebrates including man, A study in the comparative physiology of posture, On, 532
- Lambert, Samuel W., Address of the incoming president, 148
- Address delivered at the annual meeting, United Hospital Fund 392
- Introduction to catalogue of exhibition, 284
- Lavinder, C. H., Comment on tropical diseases of interest in New York City, A brief review, 563
- Libman, Emanuel, Dr. Henry Koplik, obituary, 667
- Lobell, A., Injection of iodized oil into the sphenoid sinuses, 122
- McKendree, Charles E., The myasthenic syndrome, 642
- MacKenzie, David W., and Hawthorne, Allan B., Unilateral renal aplasia, 538
- Marine, David, Thyroid gland and its relation to disease, The, 575

- Mayes, H. W., The use of mercurochrome as a vaginal antiseptic before the induction of labor, 540
- Moench, G. L., Report on sperm examination in obscure cases of sterility, 475
- Moorhead, John J., and Killian, John A., Metabolism in burns, 401
- Neal, Josephine B., and Applebaum, Emanuel, Encephalitis associated with measles, 414
- Neal, Josephine B., and Jackson, Henry W., Epidemic meningitis in the first three months of life, 413
- Noguchi, Hideyo, Experimental studies of trachoma, 395
- Osborn, Henry Fairfield, Fundamental discoveries of the last decade in human evolution, 513
- Pupin, M. I., Ionization and chemical reactions (Wesley M. Carpenter Lecture), 7
- Regan, Joseph C., and Tolstouhiov, Alexander, The significance of the changes of the blood in pertussis, 110
- Rugh, J. Torrance, The etiology of cavis and a new operation for its correction, 423
- Ruskin, S. L., The sensory field of the facial nerve, Intra-oral presentation, 409
- Shaltenbrand, G., Some observations on the development of human motility and on motor disturbances, 534
- Shoenfeld, Dudley D., and Silverberg, William V., The treatment of behavior problems in childhood, 111
- Sonnenschein, Robert, The philosophy of the older tests of hearing, 416
- Spencer, Henry James, Management of measles in hospital and home, The, 522
- Squier, J. Bentley, Backache from the standpoint of the urologist, 231
- Stark, Meyer M., Infected myoma uteri: with remarks on red degeneration, 743
- Starr, M. Allen, Obituary, Dr. Robert F. Weir, 449
- Stein, Arthur, Actinomyces of the ovary and fallopian tube, 744
- Strauss, Israel, Pathology and neurologic symptoms in pernicious anemia, The, 561
- Strongin, Herman F., Combined cystocele retroversion pessary, A, 425
- Taylor, Alfred S., Hemilaminectomy, 108
- Taylor, Alonzo E., Future food supply of the United States (Wesley M. Carpenter Lecture), 610
- Thayer, W. S., Remarks at dinner in honor of the opening of the new building of the Academy, 78
- Thomasson, A. H., Development of the glaucoma serotoma, 470
- Thorburn, Grant, Work capacity of the tuberculous, 739
- Tilney, Frederick, The brain of prehistoric man, 495
- Tolstouhiov, Alexander, and Regan, Joseph C., The significance of the changes of the blood in pertussis, 110
- Tyson, Henry H., Lenticulus posterior, 735
- Verhoeff, F. H., A discussion of some of the more common ophthalmic operations, 539
- Ward, George Gray, Backache from the standpoint of the gynecologist, 238
- Watson, B. P., Etiology and treatment of rectocele, 30
- Wechsler, I. S., The changing manifestations of the neuroses, 21
- White, William A., Concept of evolution as applied to the human mind, The, 502
- Williams, Frankwood E., In memoriam: Dr. Thomas W. Salmon, 659
- Wimmer, August, Encephalitic amyotrophies, 25
- Wolff, Julius, Three cases of progressive amaurosis of retrobulbar origin, 418
- Zemansky, A. Philip, Jr., Path and pathogenesis of Pertussis, The, 742

SUBJECTS

- Abel, John Jacob (Citation), 96
 Academy, Finances of the, 157
 Academy meetings, 183
 Academy, The building of the, Arthur B. Duel, 87
 Accession to Library, 437
 Accession to Library, 654
 Actinomyces of the ovary and fallopian tube, Arthur Stein, 744
 Address delivered at the annual meeting, United Hospital Fund, Samuel W. Lambert, 392
 Addresses delivered at the dinner in honor of the newly elected honorary Fellows, 69
 Address of the incoming president, Samuel W. Lambert, 148
 Address of the retiring president, Samuel A. Brown, 143
 Attendance at Section Meetings, 181
 Amaurosis of retrobulbar origin, Three cases of progressive, Julius Wolff, 418
 Amendments to Constitution and By-Laws, 52
 Amyotrophies, encephalitic, August Wimmer, 25
 Anatomy, 49
 Anatomy, Early mediaeval, Fielding H. Garrison, 607
 Anemia, The pathology and neurologic symptoms in pernicious, Israel Strauss, 561
 Announcements, 53, 552
 Announcements, Library, 658
 Announcements, Library subscriptions, 379
 Announcements, Preliminary, Of Stated Meetings of the Academy, 1927-1928, 597
 Aplasia, Unilateral renal, David W. MacKenzie and Allan B. Hawthorne, 538
 Appendicitis, Chills in acute, Ralph Colp, 104
 Appendicitis, Post-operative complications of suppurative, Condit W. Cutler, 721
 Approved Opportunities for Graduate Medical Study in New York City:
 Dermatology and syphilology, 42
 Internal medicine, 43
 Medical science or pre-clinical subjects, 49
 Pediatrics and psychiatry, 44
 Obstetrics and gynecology, 44
 Ophthalmology, 45
 Orthopedic surgery, etc., 46
 Otolaryngology, 46
 Pediatrics, 47
 Roentgenology, 47
 Surgery, 48
 Urology, 48
 Archibald, Edward William (Citation), 94
 Associated movements as found in invertebrates and vertebrates including man, A study in the comparative physiology of posture, Walter M. Kraus, 532
 Asthma, cardiac, Morris H. Kahn, 632
 Auditor's report, 157
 Backache, A symposium on, 224
 Backache from the standpoint of the gynecologist, George Gray Ward, 238
 Backache from the standpoint of the orthopedist, Nathaniel Allison, 224
 Backache from the standpoint of the urologist, J. Bentley Squier, 231
 Bacteriology and the theory of ultrascopic viruses, editorial, Fielding H. Garrison, 217
 Bacteriology and immunology, 49
 Barany, Robert (Citation), 95
 Barringer, Theodore Bame, Jr., necrology, 605
 Basch, Dr. Seymour, necrology, 451
 Behavior problems in childhood, The treatment of, Dudley D. Shoenfeld and William V. Silverberg, 111
 Benefactors, 214
 Bequests, Form of, 183
 Billings, Frank (Citation), 98
 Bishop, Ernest Simons, necrology, 54
 Book Review:
 Healing power of nature, Fielding H. Garrison, 479
 New history of medicine, Fielding H. Garrison, 477
 Books and the doctor, Harvey W. Cushing, 69
 Boyd, John Covert, necrology, 605
 Boyer, Arthur Albert, necrology, 380
 Brain abscess, Pathology of, Joseph H. Globus, 28

- Brain of prehistoric man, The, Frederick Tiluey, 495
- Brief discussion of three cases of extra-vesical ureters, H. Dawson Furniss, 472
- Bright's disease, The present status of the classification of, Rolfe Floyd, 244
- Brown, Willet Stuart, necrology, 381
- Brush, Edward Fletcher, necrology, 671
- Building of the Academy, The, Arthur B. Dnel, 87
- Burns, Metabolism in, John J. Moorhead and John A. Killian, 401
- Butler, Glenworth Reeve, necrology, 55
- Calcf, Jeremiah Francis, necrology, 488
- Candidates for election, 600
- Cardiac asthma, Morris H. Kahn, 632
- Carman, Albro Richard, necrology, 380
- Carpenter Lecture, Ionization and chemical reactions, M. I. Pupin, 7
- Carpenter, Wesley M. Lecture, Future food supply of the United States, Alonzo E. Taylor, 610
- Carter, Herbert Swift, necrology, 672
- Obituary, Ellsworth Eliot, Jr., 764
- Resolution of the Council, 764
- Case of cyst of the retina, A, Martin Cohen, 734
- Case of multiple dural neoplasms, A, E. D. Friedman, 19
- Catalogue of an exhibition of works in the plastic and graphic arts by American physicians, 284
- Cavus, The etiology of, and a new operation for its correction, J. Torrance Rugh, 423
- Chagas, Carlos (Citation), 97
- Changing manifestations of the neurones, The, I. S. Wechsler, 21
- Chemistry, biochemistry and metabolism, 49
- Children, A study of tuberculin-positive, in foster homes, Arthur Forrest Anderson, 415
- Childrens' service, City Hospital, Dietary of the, Walter Lester Carr, 453
- Chills in acute appendicitis, Ralph Colp, 104
- Chronology of the development of heating, ventilation and lighting, 63
- Citations, Honorary Fellows, 94
- Coggeshall, Henry, necrology, 488
- Collego of Physicians of Philadelphia, The, George E. de Schweinitz, 73
- Colonial medicine or the doctor of our forefathers, Thomas J. Harris, 707
- Combined cystocele retroversion pessary, Herman F. Strongin, 425
- Comment on tropical diseases of interest in New York City, a brief review, C. H. Lavinder, 563
- Committee on Admission, Report, 165
- Committee on Medical Education, 42, 599
- Approved Opportunities for Graduate Medical Study in New York City, 599
- Committee on Public Health Relations, Brief summary of the work of, 172
- Committees, New Academy, 283
- Concept of evolution as applied to the human mind, The, William A. White, 502
- Constitution and By-Laws, Amendments to, 52, 435
- Constitution and characterology, (eyeloids and schizoids), F. H. Garrison, 489
- Contagious disease hospitals of the Department of Health of the City of New York, Recommendations relative to the, 543
- Control of post-operative hemorrhage following nephrectomy for removal of renal calculi, Dougal Bissell, 460
- Cornwell, Dr. Herbert Cerde de Villarrestan, necrology, 451
- Correction, 605
- Council, Resolution of the, Dr. Herbert Swift Carter, 764
- Cultivation of lens epithelium, The, Daniel B. Kirby, 583
- Cushing, Harvey W. (Citation), 94
- Cyst of the retina, A case of, Martin Cohen, 734
- Deafness cures, Fakes and facts, Arthur W. Cramp, 726
- Dedicatory prayer, Rev Sloane Coffin, 84

- Dermatology, syphilology, Approved Opportunities for Graduate Medical Study in, 42
- De Schweinitz, George E. (Citation), 94
- Development of military medicine, The, Lieut. Col. Jay W. Gris-singer, M.C., U. S. A., 301
- Development of the glaucoma scotoma, A. H. Thomasson, 470
- Dietary of the Children's Service, City Hospital, Walter Lester Carr, 453
- Disadvantages of the prolonged period of rest in best post-partum, The, H. J. Epstein and A. J. Fleischer, 428
- Discussion of some of the more common ophthalmic operations, A. F. H. Verhoeff, 539
- Dock, George (Citation), 98
- Donations to the Library Funds, 182, 553
- Druskin, Samuel Jerome, necrology, 54
- Düsseldorf, The Gesolei at, F. H. Garrison, 1
- Early mediaeval anatomy, F. H. Garrison, 607
- Editions of the regimen sanitatis salerintarium, Charles L. Dana, 112
- Editorial:
- Bacteriology and the theory of ultrascopic viruses, Fielding H. Garrison, 217
- History of heating, ventilation and lighting, Fielding H. Gar-
 rison, 57
- The Gesolei at Düsseldorf, Field-
 ing H. Garrison, 1
- Education, Medical, Report of Com-
 mittee on, 178
- Edward N. Gibbs Memorial Prize
 Fund, The, 282
- Effect of parathyroid extract on
 tetany and rickets in infants,
 Lynne A. Hoag, 468
- Election of Honorary Fellows, Cita-
 tions, 94
- Emboic and metastatic phenomena
 in pleural and pulmonary infec-
 tions, Paul W. Aschner, 528
- Epithelial amyotrophies, August
 Carp, 25
- Erythema associated with measles,
 Joseph B. Neal and Emanuel
 Carp, 414
- Entrance Hall and Main Stairway,
 illustration, 69
- Epidemic meningitis in the first
 three months of life, Josephine B.
 Neal and Henry W. Jackson, 413
- Essentials in the prevention of tu-
 berculosis in infancy and child-
 hood, S. Adolphus Knopf, 26
- Etiology and treatment of rectocele,
 B. P. Watson, 30
- Etiology of ear and a new opera-
 tion for its correction, The, J.
 Torrance Rugh, 423
- Evolution as applied to the human
 mind, The concept of, William A.
 White, 502
- Evolution, Fundamental discoveries
 of the last decade in human,
 Henry Fairfield Osborn, 513
- Evolution of mind, The symposium,
 495
- Exhibit, Richard Bright, 545
- Exhibit of works in the plastic and
 graphic arts by American physi-
 cians, Catalogue of an, 284
- Exophthalmic goiter, Studies of, and
 the involuntary nervous system,
 Leo Kessel and Harold Thomas
 Hyman, 422
- Experimental studies of trachoma,
 Hideyo Noguchi, 395
- Extra-vesical ureters, Brief discus-
 sion of three cases of, H. Dawson
 Furniss, 472
- Eye, Treatment of the commoner
 syphilitic lesions of the, J. G.
 Hopkins, 584
- Facial nerve, The sensory field of
 the, intra-oral presentation, S. L.
 Ruskin, 409
- Fakes and fads in deafness cures,
 Arthur W. Cramp, 726
- Feeling of inferiority and its com-
 pensation, The, Alfred Adler, 254
- Fellows, Associate, 212, 297, 298, 441
- Fellows, Elected, 132, 297, 379, 441,
 763
- Fellows, Honorary, 213
- Fellows, Non-resident, 206
- Fellows, Resident, 184
- Finances of the Academy, 157
- Finney, John M. T. (Citation), 95
- Foreign bodies in the intestine, Louis
 Carp, 100
- Form of bequests, 183
- Fracture of the fifth metatarsal bone
 with special reference to delayed
 union, Louis Carp, 581

- Fractures of the transverse processes of the lumbar vertebrae, Robert H. Kennedy, 400
- Frauenthal, Henry W., necrology, 380
- Friedman, Gedide Abraham, necrology, 381
- Fuhs, Jacob, necrology, 671
- Fund, Gibbs Memorial Prize, 282
- Fundamental discoveries of the last decade in human evolution, Henry Fairfield Osborn, 513
- Future food supply of the United States, Wesley M. Carpenter Lecture, Alonzo E. Taylor, 610
- Gastrectomy, gastric secretion after sub-total, Eugene Klein, 586
- Gastric secretion after subtotal gastrectomy, Eugene Klein, 586
- Gesolei at Düsseldorf, The, Fielding H. Garrison, 1
- Gibney, Virgil Pendleton, necrology, 554
- Glaucoma scotoma, The development of the, Robert Thomasson, 470
- Godfrey, Charles Cartlidge, necrology, 606
- Goiter, exophthalmic, Studies of, and the involuntary nervous system, Leo Kessel and Harold Thomas Hyman, 422
- Haine, William Alexander, necrology, 672
- Hannoek, Edwin Wallace, necrology, 605
- Harris, Isham Green, necrology, 450
- Hay fever, The perennial treatment of seasonal, Aaron Brown, 536
- Head, The palaeomorphology of the human: Ten structural stages from fish to man, William K. Gregory, 525
- Hearing, Philosophy of the older tests of, Robert Sonnenschein, 416
- Hemilaminectomy, Alfred I. Taylor, 108
- Hemorrhage, Post-operative, Following nephrectomy for renal calculi, Control of, Dougal Bissell, 460
- High cervical lesions in the guise of combined system disease, E. D. Friedman, 105
- Hip joint, Reconstruction operations on the, E. G. Brackett, 357
- Historical perspectives in ophthalmology, Arnold C. Klebs, 470
- Historical Secretary, Report of, 163
- History of heating, ventilation and lighting, F. H. Garrison, 57
- History, The philosophy of, John C. Hemmeter, 383
- Honorary Fellows (Citations), 94
- Hosack bed, 487, 553
- Hosack bed for sick and needy physicians, 182
- Hosack Hall (Illustration), 99
- House rules of the new building, 134
- How young doctors should behave, Charles L. Dana, 650
- Humphries, Dr. Henry Richard, necrology, 300
- Hynes, William Rose, necrology, 138
- In Memoriam: Dr. Thomas W. Salmon, Frankwood E. Williams, 659
- Industrial hygiene exhibit, 600
- Infected myoma uteri: with remarks on red degeneration, Meyer M. Stark, —
- Inferiority, The feeling of, and its compensation, Alfred Adler, 254
- Infiltrations, Infraclavicular tuberculous, Maurice Fishberg, —
- Infraclavicular tuberculous infiltrations, Maurice Fishberg, —
- Injection of iodized oil into the sphenoidal sinuses, A. Lobell, 122
- Innervation, static and kinetic, J. Feser, 589
- Internal revenue act, 482
- Intestine, Foreign bodies in the, Louis Carp, 100
- Introduction to catalogue of exhibition, Samuel Lambert, 284
- Iodized oil, Injection of, into the sphenoidal sinuses, A. Lobell, 122
- Ionization and chemical reactions (Wesley M. Carpenter Lecture), M. I. Pupin, 7
- Jackson, Chevalier (Citation), 95
- Jackson, Holmes Condict, necrology, 672
- Jacobus, Arthur M., necrology, 53
- Jadassohn, Josef (Citation), 96
- James, Dr. Walter B., portrait, 44
- James, Dr. Walter B., necrology, 381
- James, Dr. Walter B., obituary, Joseph Collins, 443
- Kidney disease, polycystic aspects of, R. E. C.

- Koplik, Dr. Henry, necrology, 451
 Koplick, Dr. Henry, obituary, E. Libman, 667
- Lee, Edward Wallace, necrology, 671
- Lens epithelium, The cultivation of, Daniel B. Kirby, 583
- Lesions, High cervical, in the guise of combined system disease, E. D. Friedman, 105
- Library, Accessions, 39, 130, 273, 279, 483, 548, 601, 654
- Library, and its new features, The, 269
- Library announcement, 658
- Library, Committee, Report of, 166
- Library funds, 487
- Library, Funds, Donations to, 182
- Library notes, 487
- Library notes, Richard Bright Exhibit, 545
- Lloyd, Samuel, necrology, 138
- Loss of vitreous, Isaac Hartshorne, 728
- Management of measles in hospital and home, The, Henry James Spencer, 522
- Martin, Charles James (Citation), 97
- Mason, Frederick Silvester, necrology, 769
- Mason, Lewis Duncan, necrology, 488
- Mastoiditis in infants, Arthur M. Alden, 591
- McWilliams, Dr. Clarence A., necrology, 299
- Meara, Frank Sherman, necrology, 671
- Measles, Enecephalitis associated with, Josephine B. Neal and Emanuel Applebaum, 414
- Measles, The management of, in hospital and home, Henry James Spencer, 522
- Medical Education, Report of Committee on, 178
- Medical visitors to New York, 50
- Medulla, Tumor of the, George H. Hyslop, 463
- Meetings, Annual, Proceedings of, 34
- Meetings, Section (see Section Meetings)
- Meetings, Stated (see Proceedings of my Meetings), 183
- Measles, Epidemic, in the first three months of life, Josephine B. Neal and Henry W. Jackson, 413
- Mercuriochrome as a vaginal antiseptic before the induction of labor, The use of, H. W. Mayes, 540
- Metabolism in burns, John J. Moorhead and John A. Killian, 401
- Metabolism in cases with cutaneous burns, John J. Moorhead and John A. Killian, 406
- Metastatic phenomena in pleural and pulmonary infections, Embolism and, Paul W. Aeshner, 528
- Metatarsal bone, Fracture of the fifth, with special reference to delayed union, Louis Carp, 581
- Military medicine, The development of, Jay W. Grissinger, 301
- Mind, The evolution of, (Symposium), 495
- Motility, Human, and motor disturbances, Some observations on, G. Shaltenbrand, 534
- Myoma uteri, Infected; with remarks on red degeneration, Meyer M. Stark, 743
- Myasthenic syndrome, The, Charles E. McKendree, 642
- Nasal application of pituitary extract for obstetrical purposes, The, J. Hofbauer, 594
- Necrology:
 Theodore Bame Barringer, Jr., 605
 Seymour Basch, 451
 Ernest Simons Bishop, 54
 John Covert Boyd, 605
 Arthur Albert Boyer, 380
 Willet Stuart Brown, 381
 Edward Fletcher Brush, 671
 Glenworth Reeve Butler, 55
 Jeremiah Francis Calef, 488
 Albro Richard Carman, 380
 Herbert Swift Carter, 672
 Henry Coggeshall, 488
 Herbert Cerda de V. Cornwell, 451
 Samuel Jerome Druskin, 54
 Henry W. Frauenthal, 380
 Gedide Abraham Friedman, 381
 Jacob Fuhs, 671
 Virgil Pendleton Gibney, 554
 Charles Cartlidge Godfrey, 606
 Edwin Wallace Hannoek, 605
 Isham Green Harris, 450

- William Alexander Hume, 672
 Henry R. Humphries, 300
 William Rose Hynes, 138
 Holmes Condict Jackson, 672
 Arthur M. Jacobus, 53
 Walter Belknap James, 381
 Henry Koplik, 451
 Edward Wallace Lee, 671
 Samuel Lloyd, 138
 Clarence A. McWilliams, 299
 Frederic Silvester Mason, 769
 Lewis Duncan Mason, 488
 Frank Sherman Meara, 671
 Charles Howard Peek, 380
 Howard C. Peek, 446
 John Gardner Perry, 55
 Thomas William Salmon, 606
 Charles Schram, 54
 Antonio Stella, 554
 Arthur Seymour Tenner, 56
 Jacob Teschner, 672
 William Gilman Thompson, 672
 Robert Fulton Weir, 381
 Abraham Zingher, 488
 Neoplasms, A case of multiple dural,
 E. D. Friedman, 19
 Neufeld, Friedrich (Citation), 97
 Neuroses, Changing manifestations
 of the, I. S. Wechsler, 21
 New Academy Committees, 283
 New Building, Opening of, 51
 Newman, Sir George (Citation), 97
 Newman, Sir George, Dinner to,
 Public, 541
 New York Academy of Medicine,
 Some important events in the re-
 cent history of, David Bryson
 Delavan, 675
 The New York Academy of Medi-
 cine (Illustration), 57
 Note on Girolamo Segato, A. F. H.
 Garrison, 481
 Obituary: Dr. Henry Koplik,
 Emanuel Libman, 667
 Opening exercises at the new build-
 ing, 84
 Opening of the new building, 51
 Ophthalmic operations, A discussion
 of some of the commoner, F. H.
 Verhoeff, 539
 Ophthalmology, Historical perspec-
 tives in, Arnold C. Klebs, 470
 Opportunities for graduate Medical
 Study in Hospitals of New York-
 City, 599
 Palaeomorphology of the human
 head: Ten structural stages from
 fish to man, The, William K. Gre-
 gory, 525
 Parathyroid extract, The effect of
 on tetany and rickets in infants,
 Lynne A. Hoag, 468
 Pathology, 49
 Pathology and neurologic symptoms
 in pernicious anemia, The, Israel
 Strauss, 561
 Pathology and pathogenesis of
 Perthes' disease, The, A. Philip
 Zemansky, Jr., 742
 Pathology of brain abscess, Joseph
 H. Globus, 28
 Peek, Charles Howard, neurology,
 380
 Peek, Dr. Howard C., obituary,
 Charles N. Dowd, 446
 Perennial treatment of seasonal hay
 fever, The, Aaron Brown, 536
 Periarthritis nodosa, Francis Har-
 bitz, 17
 Perry, John Gardner, neurology, 55
 Perthes' disease, The pathology and
 pathogenesis of, A. Philip Ze-
 mansky, Jr., 742
 Pessary, A combined cystocele retro-
 version, Herman F. Strongin, 425
 Pharmacology, 50
 Philadelphia, The College of Physi-
 cians of, George E. de Schweinitz,
 73
 Philosophy of history, The, John C
 Hemminger, 383
 Philosophy of the older tests of
 hearing, The, Robert Sonnen-
 schlein, 416
 Phosphaturia, George Baehr, 419
 Physiology, 50
 Pituitary extract, The nasal appli-
 cation of, for obstetrical pur-
 poses, J. Hofbauer, 594
 Pleurisy, Treatment of acute sup-
 purative, in children, John V
 Bohrer, 456
 Post-operative complications of sup-
 purative appendicitis, Condict W
 Cutler, 721
 Post-partum, The disadvantages of
 the prolonged period of rest
 bed, H. J. Epstein and A
 Fleischer, 428
 Posture, A study in the com-
 physiology of, Walter M.,
 432
 Practical lectures, progre,

- Prayer, Dedicatory, Rev. Henry Sloane Coffin, 84
- Pregnancy, Renal and cardiovascular disease in, Their relation to certain general medical problems, Jean Corwin and W. W. Herrick, 120
- Prehistoric man, The brain of, Frederick Tilney, 495
- Preliminary announcement of Stated Meetings, 1927-1928, 597
- Present status of the classification of Bright's Disease, The, Rolfe Lloyd, 244
- President, Address of the incoming, Samuel W. Lambert, 148
- President, Address of the retiring, Samuel A. Brown, 143
- Proceedings of Academy Meetings, December, 1926:
- Section of Dermatology and Syphilis, 33
 - Section of Genito-Urinary Surgery, 36
 - Section of Historical and Cultural Medicine, 35
 - Section of Laryngology and Rhinology, 38
 - Section of Medicine, 38
 - Section of Neurology and Psychiatry, 34
 - Section of Obstetrics and Gynecology, 39
 - Section of Ophthalmology, 37
 - Section of Orthopedic Surgery, 37
 - Section of Otology, 35
 - Section of Pediatrics, 34
 - Section of Surgery, 32
- Proceedings, Annual meeting, 124
- Proceedings, Section meetings, 257
- Proceedings, Stated meetings, 360, 366, 256
- Proceedings of Academy Meetings, December, 1926, Stated meetings, 32
- Program, Practical lectures, 758
- Protecting the eye by reflecting glasses, Joseph Imre, 98
- Protein stimulation (local death), and protein therapy, Fielding H. Garrison, 555
- Public Health Relations Committee, Report of, 263
- Putti, Vittorio (Citation), 95
- Recommendations relative to the contagious disease hospitals of the Department of Health of the City of New York, 543
- Reconstruction operations on the hip-joint, E. A. Braekett, 357
- Rectocele, etiology and treatment of, B. P. Watson, 30
- Regimen sanitatis salernitarum, Editions of the, Charles L. Dana, 112
- Remarks at dinner in honor of the opening of new building of the Academy, W. S. Thayer, 78
- Renal and cardiovascular disease in pregnancy, Their relation to certain general medical problems, Jean Corwin and W. W. Herrick, 120
- Report, Auditor's, 157
- Committee on Medical Education, 178
- Committee on Admission, 165
- Of the Historical Secretary, 163
- Library Committee, 166
- Public Health Relations Committee, 263
- Report on sperm examination in obscure cases of sterility, G. L. Moench, 475
- Report of Trustees, 151
- Report of Treasurer (Abstract), 154
- Resolution of the Council, Dr. Herbert S. Carter, 764
- Resolution regarding the Volstead Act, 598
- Rest, The disadvantages of the prolonged period of, in bed post partum, H. J. Epstein and A. J. Fleischer, 428
- Retina, A case of cyst of the, Martin Cohen, 734
- Retroversion, A combined cystocele, Pessary, Herman F. Strongin, 425
- Richard Bright Exhibit, 545
- Salmon, Dr. Thomas W., In memorandum, Frankwood E. Williams, 659
- Salmon, Thomas William, necrology, 606
- Schram, Charles, necrology, 54
- Segato, Girolamo, A note on, Fielding H. Garrison, 481
- Sensory field of the facial nerve,

- Intra-oral presentation, S. L. Ruskin, 409
- Service of the Academy, The, Samuel A. Brown, 85
- Section meetings, Attendance at, 181
- Section meetings:
- Dermatology and Syphilis, 33, 124, 257, 361, 368
 - Genito-Urinary Surgery, 36, 117, 128, 260, 363, 371, 434
 - Historical and Cultural Medicine, 35, 112, 129, 262
 - Laryngology and Rhinology, 38, 122, 262, 366, 434
 - Laryngology and Rhinology; Otolology (combined), 373
 - Medicine, 38, 120, 127, 259, 363, 371, 433
 - Neurology and Psychiatry, 34, 125, 258, 362, 369, 431
 - Neurology and Psychiatry and New York Neurological Society, 19, 105
 - Obstetrics and Gynecology, 30, 39, 129, 261, 365, 372, 425
 - Ophthalmology, 37, 98, 127, 261, 365, 371, 432
 - Orthopedic Surgery, 37, 128, 260, 364, 370
 - Otology, 28, 35, 114, 126, 259, 362, 432
 - Otology, Laryngology and Rhinology (combined), 373
 - Pediatrics, 26, 34, 110, 126, 258, 369, 431
 - Surgery, 32, 100, 125, 257, 361, 367, 430
- Sherrington, Sir Charles (Citation), 96
- Significance of the changes in the blood in pertussis, The, Joseph C. Regan and Alexander Tolstouhov, 110
- Smith, Theobald (Citation), 94
- Some important incidents in the recent history of the New York Academy of Medicine, David Bryson Delavan, 675
- Some observations on the development of human motility and on motor disturbances, G. Schaltenbrand, 534
- Special funds, Statement of, 159
- Special notice, 673
- Stated meetings, 124, 183, 429
- Stated meetings, Preliminary announcements, 597
- Statement of special funds, 159
- Static and kinetic innervation, J. Feser, 589
- Stella, Antonio, necrology, 554
- Sterility, Sperm examination in obscure cases of, G. L. Moench, 475
- Studies of exophthalmic goiter and the involuntary nervous system, Leo Kessel and Harold T. Hyman, 422
- Study of tuberculin-positive children in foster homes, A. Arthur Forrest Anderson, 415
- Surgical aspects of polycystic kidney disease, R. E. Cumming, 117
- Symposium: The evolution of mind, 495
- Syndrome, The myasthenic, Charles E. McKendree, 642
- Tenner, Arthur Seymour, necrology, 561
- Teschner, Jacob, necrology, 672
- Tests, The philosophy of the older—of hearing, Robert Sonnenschein, 416
- Thayer, William Sydney (Citation), 95
- Thompson, William Gilman, necrology, 672
- Thompson, Dr. William Gilman, obituary, 767
- Three cases of progressive amaurosis of retrobar origin, Julius Wolff, 418
- Thyroid gland and its relation to disease, The, David Marine, 575
- Trachoma, Experimental studies of, Hideyo Noguchi, 395
- Traumatic mastoiditis with post-intracranial complication, Walter L. Horn, 114
- Treasurer's report (Abstract), 154
- Treatment of acute suppurative pleurisy in children, John V. Bohrer, 456
- Treatment of behavior problems in childhood, The, Dudley D. Shoenfeld and William V. Silverberg, 111
- Treatment of the commoner syphilitic lesions of the eye, J. G. Kins, 584
- Tropical diseases of interest to New York City, A brief review, Lavinder, 563
- Trustees, Report of, 7

- Trustees, Council and committee meetings, 183
- Tuberculin-positive children in foster homes, A study of, Arthur Forrest Anderson, 415
- Tuberculosis in infancy and childhood, Essentials in the prevention of, S. Adolphus Knopf, 26
- Tuberculous, Work capacity of the, Grant Thorburn, 739
- Tuffier, Maria Theodore (Citation), 96
- Tumor of the medulla, George H. Hyslop, 463
- Unilateral renal aplasia, David W. MacKenzie and Allan B. Hawthorne, 538
- United Hospital fund, Address delivered at the annual meeting, Samuel W. Lambert, 392
- Uterus duplex unicollis, Walter T. Danureuther, 473
- Vertebrae, Fractures of the transverse processes of the lumbar, Robert H. Kennedy, 400
- Vitreous, Loss of, Isaac Hartshorne, 728
- Volstead Act, Resolution regarding the, 598
- Von Müller, Friedrich (Citation), 97
- Weir, Robert Fulton, necrology, 381
- Weir, Dr Robert F., obituary, M. Allen Starr, 449
- Weir, Dr. Robert F., portrait, 448
- Wesley M. Carpenter Lecture, Ionization and chemical reactions, M. I. Pupin, 7
- Widal, George Fernand (Citation), 97
- Woerishaffer Hall, reading room, (Illustration), 123
- Work capacity of the tuberculous, Grant Thorburn, 739
- Zingher, Abraham, necrology, 488

